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Section of Pædiatrics.[1]

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Honorary Secretary: Howard Williams, M.D., B.S., M.R.A.C.P., Victoria.

Acute Abdominal Pain in Infancy and Childhood.

A SYMPOSIUM was held on the subject of acute abdominal pain in infancy and childhood.

CHARLES RICHARDSON (Victoria) read a paper on acute abdominal pain in infancy and childhood, from the point of view of the problem in the home. He said that it was so vital a matter that abdominal pain must be regarded as a signal of a serious state until proved otherwise. A careful history-taking was essential, and the history given by the mother must be complete; the mother's instinctive appreciation of the presence or absence of pain in her child, and of any accompanying manifestations of distress, was valuable. The clinician should discover whether the pain was related to feeding, to bowel actions, to urination or to vomiting, and whether it was sufficient to make the child lie down or stop playing. Clinical examination in the home might be difficult, but was of great importance in the exclusion of dangerous conditions before less important causes of pain might be accepted. Acute appendicitis must be given absolute priority in the clinician's mind, and not much reliance should be placed on the localization of pain by a young child. The only constant symptom was abdominal

[1] The meeting of the Section of Pædiatrics with the Section of Obstetrics and Gynæcology has been recorded.

pain and the only constant sign was tenderness. If a furred tongue and "abdominal" breath were present, the answer was fairly certain. Dr. Richardson showed how the diagnosis might be made from such common conditions as an acute throat infection, pneumonia, acute rheumatism, *herpes zoster*, pyelitis, infectious hepatitis and acute non-specific adenitis. He gave a warning on the dangers of acute obstructive appendicitis, which might be difficult to recognize, and which might go on to peritonitis or abscess formation. If there was any doubt whether a child was suffering from acute appendicitis or not, he should be sent at once to the surgeon. Turning to acute intussusception, Dr. Richardson said that it occurred frequently enough to be kept in mind, and that the diagnosis was usually not difficult, though the onset might in some cases be insidious and that might cause trouble. In the examination of all children with acute abdominal pain great care was necessary, and psychological causes should be kept in mind. The practitioner should also remember such conditions as fat intolerance, a low fasting blood sugar level, plumbism, worm infestations, so-called migraine and cyclic vomiting, and the various congenital abnormalities. In conclusion Dr. Richardson said that success in making a diagnosis depended on many varying factors, including the type of home, the intelligence of the parents and their willingness to cooperate with the doctor, and assessment of the clinical findings in relation to the history. He made a plea for a return to the old type of examination, including a careful and detailed history-taking, observation, and complete clinical examination and investigation; only in that way would the problem of abdominal pain in children be solved and the question of surgical or medical treatment answered.

S. E. J. ROBERTSON (New South Wales) discussed the medical aspects of acute abdominal pain in infancy and childhood under three headings. The first related to the situation in which the condition was remote from the abdomen and included those causes of discomfort in small children in which the mother had mistakenly localized the discomfort to the abdomen. In addition, diabetic acidosis, epilepsy manifesting itself as paroxysmal abdominal pain, spontaneous hypoglycæmia, abdominal allergy, the Schönlein-Henoch syndrome, rheumatic fever, and finally psychological disturbances were discussed. Under the second heading conditions less remote from the abdomen were described. Disease of the thoracic viscera included basal pneumonia with irritation of the diaphragmatic pleura, Bornholm disease and acute pericarditis. Disease of the spinal nerves was principally that associated with vertebral osteitis, but also included retroperitoneal malignant disease, spinal cord tumours, meningitis and poliomyelitis. Methods of distinguishing disease in the vicinity of the hip were then suggested. Under the third and final heading were conditions within the abdomen itself. The syndrome of infantile colic was described with its probable causes. This was followed by a discussion of abdominal pain in gastro-enteritis and its differentiation from acute appendicitis and peritonitis. The other conditions mentioned under that heading were bacterial and toxic food poisoning, infections, malformations and tumours of the renal tract, peritonitis, acute mesenteric lymphadenitis, inflammation and torsion of the genital organs and acute pancreatitis. The paper closed with the recommendation that any child with acute abdominal pain should have a surgical condition carefully excluded, if necessary by laparotomy.

DOUGLAS MCKAY (South Australia), discussing the surgical aspect of acute abdominal pain in infancy and childhood, said that the age of the patient was an important factor in making a diagnosis. Pyloric stenosis and the hypertonic type of child were encountered in the first few months of life. The initial evidence of malrotation of the gut was usually forthcoming in the first year of life. Intussusception in 85% of cases occurred in the under two years age group, with the peak between four and ten months. Acute appendicitis was a comparative rarity in the first two years of life. In the case of primary peritonitis the majority of patients with streptococcal infections were aged under four years, with equal distribution of the sexes, whilst those with pneumococcal infections were preponderantly female and the age incidence was between three and ten years. Referring to other conditions concerned in the diagnosis, Dr. McKay said that when the appendix found at operation was not considered to be an adequate cause for the symptoms, a Meckel's diverticulum must be searched for. In cases of catarrhal jaundice the early presence of urobilinogen in the urine might clinch the diagnosis. Kidney conditions had to be considered and intravenous pyelography might reveal unsuspected abnormalities. Upper respiratory tract infection and pneumonia often caused severe abdominal pain, but the absence of rigidity associated with a considerable elevation of temperature was an important diagnostic point. In cases of cyclic vomiting headache was more a feature than abdominal pain. With gastro-intestinal upsets the bowel function was of particular importance, and a careful survey of the motions yielded valuable information.

Dr. McKay made a strong plea for careful investigation of abdominal pain in the young child. He said that in the child one was dealing with a very unstable gastro-intestinal tract, and many factors would cause an upset of peristaltic rhythm with consequent pain. Hence, in the absence of definite signs of acute appendicitis, it was necessary to be conservative and to give the individual ample time to develop some degree of stability of his intestinal musculature.

ROBERT SOUTHBY (Victoria), in opening the discussion on abdominal pain, agreed that the problem was a most difficult one. He reemphasized the necessity of being sure that the pain really was abdominal. He was pleased to hear appendicular colic described as an entity in contrast to recurrent appendicitis, indicating that there was a mechanical basis for the symptoms. He had found opaque meals to be very valuable in diagnosis under those conditions. The radiologist could sometimes demonstrate a long or twisted appendix and in other cases failure of the appendix to fill. That negative evidence was almost as helpful. In his experience patients submitted to operation had revealed adhesions or stenosis at the base or an impacted fæcolith. Dr. Southby said that the longer he had been seeing children, the harder he found it to decide whether the pain was above or below the diaphragm. Intussusception was a fairly straightforward condition in babies, but more difficult to diagnose in older children, who also tended to have it as a recurrent state. Near puberty, recurrent attacks of pain with vomiting in girls sometimes meant only the onset of menstrual symptoms. Dr. Southby said that cyclical vomiting attacks tended to come on with dramatic suddenness and after a while to cease suddenly. He thought that there was often a mechanical basis for them, for example, volvulus or internal hernia. He was sure that the "acute allergic abdomen" was a clinical entity, though a rare one. It was usual to have a positive family history. If such patients were opened the abdomen was found to contain straw-coloured fluid, and one or two feet of the small bowel might appear as though covered with a scarlatiniform rash.

J. STEIGRAD (New South Wales) discussed what he called the "perennial pædiatric bellyache" from the surgical aspect. He was impressed with the stress Dr. Richardson had laid upon appendicitis and agreed, because the child with single severe attacks of abdominal pain was so important. He had recently met with a number of cases of torsion of the testicle, but not in any instance was pain complained of. He differed from Dr. McKay, finding primary peritonitis rare. He had met with only one case in the post-war period. Concerning intussusception, he made the point that in about 30% to 40% of cases the patient came with a complaint of wingeing, crying and vomiting, but not the sudden classical severe pain. He considered that in his hospital the diagnosis of appendicitis was generally correct. Of the last 28 patients admitted with the diagnosis 24 had proved to have appendicitis at operation. He did not think that non-specific mesenteric adenitis was a very common condition, but would not deny that the syndrome occasionally occurred.

LINDSAY A. DEY (New South Wales), President of the section, asked what was the nature of the condition which simulated an acute abdomen and where at operation one

found simply straw-coloured fluid in the peritoneal cavity and enlarged mesenteric glands.

Ellen Kent Hughes (Armidale, New South Wales) said that nobody had yet mentioned some common causes of abdominal pain in children. She herself came from an orchard district and found plenty of cases of acute abdominal pain from eating green apples. She thought that a diagnostic soap and water enema often proved revealing. In the cold weather, in her experience, lack of clothing around the abdomen was often a cause of abdominal pain, particularly in babies. She asked whether any of the speakers had seen children with duodenal ulcers. She herself saw a number of children with symptoms somewhat suggesting that condition. They recovered with rest and a suitable ulcer diet.

Another speaker inquired whether appendicectomy was the right treatment in cases in which the history suggested appendicular colic.

B. R. Hallows (Victoria) spoke of torsion of the testicles. He said that torsion of the cord usually occurred in cases of ectopic testis; it might prove difficult to diagnose, and an occasional source of severe abdominal pain. Ileo-ileal intussusception was harder to diagnose than the usual variety, and occurred in older children up to the age of ten years, who often presented with pain and a mass in the lower part of the abdomen. Another cause of recurrent abdominal pain in children was the condition known as congenital small liver. Such children had a limited fat tolerance. Modification of their diets to give less fat and more protein led to a disappearance of their pain.

Felix Arden (Queensland) put forward the view that abdominal pain in a child and headache in an adult had much in common, particularly in three special conditions. The first was migraine, which in childhood took the form of attacks of abdominal pain and vomiting. There was always a family history of that, and as the child himself grew older he tended to lose the abdominal pain and to develop headache after the adult fashion. The second was fever—any rise in temperature in an adult tending to produce headache. Children under the same circumstances complained of stomachache, although the usual cause of the fever was tonsillitis or some other upper respiratory tract infection. Other feverish illnesses in children also caused pain. The third condition was emotional tension or anxiety. It was well known how adult headaches were frequently due to distress of this kind. Careful investigation of a child's history and domestic background and relationships at school would often reveal some stress or tension as the source of his recurring attacks of abdominal pain.

Douglas Stephens (Victoria) spoke of what his late father had referred to as navel colic. Such children suffered recurring attacks of pain, very often accompanied by headache, pallor and fatigue. His father had noticed that they exhibited long-standing symptoms of nervousness, sometimes going back to infancy, and wondered whether anoxia at birth had had any causative role. Such children seldom gained access to hospital wards, being referred to the out-patient department, where they were very common.

R. A. R. Green (New South Wales) mentioned migraine equivalents, one of which was abdominal pain. He stresed the point that careful history-taking should include also an account of the family background and of similar troubles in other relatives.

Howard Williams (Victoria) asked whether the speakers had found sedatives a help in examining the abdomen of young children. He himself derived great benefit from them at the Melbourne Children's Hospital, even resorting to light anæsthesia if necessary.

Murray Clarke (Victoria) said that the speakers had been right to emphasize appendicitis. He sometimes found it easier to examine the child upon the mother's lap. He thought that there was a danger in being too clever in finding mesenteric adenitis and similar conditions and missing appendicitis, which was more common and more important. In his experience pain was fairly common in torsion of the testicles.

Dr. Richardson, in reply, said that he kept a baby asleep if possible and felt its abdomen before it was undressed. He had no hesitation in using sedatives, even anæsthesia. He himself thought that migraine, which had been put forward as a cause of abdominal pain in children, generally had an organic basis.

Dr. Robertson, in reply, said he thought that green apples caused pain by producing subacute bowel obstruction. He was pleased to hear the subject of duodenal ulcer mentioned. Many young adults with duodenal ulcer gave histories going back into childhood. He did not believe that excess fat in the diet could cause abdominal pain. He thought that some cases described as cyclical vomiting were in fact examples of hypoglycæmia. One investigator had put down all such symptoms to release of adrenaline.

Dr. McKay, in reply, said that he had met with the condition described by Dr. Dey, but did not know the ætiology. One found straw-coloured fluid in the abdomen in various states. So far as he was concerned, mesenteric adenitis was usually a post-operative diagnosis. Appendicectomy for recurrent abdominal pain often proved good whatever the appearance of the appendix at operation; the psychological effect on the mother could not be disregarded. He warned against making too facile a diagnosis of dietary indiscretion. Persistence of symptoms were always much against this.

The Backward Child.

A symposium was held on the subject of "The Backward Child".

Felix Arden (Queensland) contributed the first paper; he dealt with ætiological factors. Backwardness he defined as a state in which a child's total behaviour was poorer than might be expected for his age. He said that it might occur with or without mental defect. A classification could be prepared on those lines. Backwardness with subnormal intelligence might be due to either environmental or intrinsic factors. Examples of the former group were congenital syphilis, nowadays a rare disease, maternal rubella, which might produce microcephaly as one of its less common sequelæ, and toxoplasmosis. Irradiation of the mother during pregnancy might produce fœtal damage. Kernicterus, which occurred in about 15% of all live-born erythroblastotic babies, usually produced severe mental defect with spasticity or athetosis in those infants which survived.

Birth trauma was a well-recognized cause of backwardness with mental defect, although it was encouraging to find a proportion of normal children who had survived severe brain hæmorrhage at birth. The principal post-natal infection producing mental defect was acute encephalitis, but it was impossible to make an accurate prognosis at the time of the attack.

Intrinsic causes of backwardness were often hereditary. Familial defect, the breeding of subnormal children from subnormal parents, was responsible for a substantial proportion of all mental defectives in the community. Phenylpyruvic amentia was an interesting disease, responsible for the condition of about 1% of all institution defectives, in which a biochemical abnormality was associated with gross cerebral dysfunction. Other examples of familial conditions were hereditary idiocy, tuberous sclerosis, the Sturge-Weber syndrome and familial cerebral degeneration. Epileptic children might be backward either as the result of a direct genetic defect after prolonged convulsions (perhaps from anoxia) or at times only because of lack of social and educational opportunities.

Unknown conditions responsible for mental defect included mongolism, microcephaly, congenital hydrocephalus, those cases of cerebral palsy not due to birth trauma, and the large group which had to be labelled for want of a better name "primary amentia".

Backwardness in children without mental defect formed a much smaller but far more important group, since useful treatment could often be instituted. That category included cerebral palsy with motor defect only, backwardness due

to deafness, and backwardness due to somatic illness. There were lastly the many backward children whose troubles stemmed from faulty environment, characterized by neglect, hardship or lack of educational opportunity.

D. G. Hamilton (New South Wales) discussed clinical patterns of backwardness in children. He said that to recognize the lesser degrees of backwardness in children it was necessary to be familiar with the progress of a normal child. At birth a baby should suck and swallow, at six weeks look at its mother or an object and notice a noise. At three months it should know its mother and enjoy play, at five months grasp an object and lift its head. By six months it should sit up with support, at ten months crawl and stand holding a rail. At one year steps were taken with one hand held. At eighteen months walking was well established and the child fed himself, said a few words and gave personality to a doll. By two years he was running, climbing stairs, joining words and scribbling. By three years he rode a "dinkie", made roads and bridges for his cars, undid buttons and pulled on socks. At four years he remembered rhymes and stories and loved to help with adult occupations. At five years he could draw a man, hop, skip and count to ten.

Assessment of intelligence demanded consideration of the overall picture rather than one function alone. Thus physical activity might be late in a heavy or hypotonic child, and speech was often late in normally intelligent children. The rate of growth of the head was important too. Growth was rapid in the first few months and then slower. A rapid rate of growth suggested hydrocephalus and a slow rate cerebral defect.

Dr. Hamilton discussed the clinical features of mongolism, cretinism, microcephaly, hydrocephalus, cerebral palsy and epilepsy with mental defect. He pointed out that many backward children could not be included in those groups. The degree of backwardness and the behaviour varied greatly. Many could be trained to do useful work. Most were happy and well-behaved, but sometimes the behaviour was difficult. That might result from undue attention, indulgence or goading by parents who had not appreciated the child's disability. The retarded child needed its share of parental care, no more and no less. If his limitations and possibilities were clearly seen, he could take his rightful place and be happy and often useful.

Raymond T. Binns (South Australia), discussing the management of the backward child, said that it depended on an accurate assessment of his physical and mental state. Any physical handicaps were corrected as far as was possible, and adverse environmental conditions should be improved. Psychological stresses in the child's life were relieved. The correct assessment of the degree of backwardness was made usually by special tests of intelligence, such as modifications of the Binet-Simon tests and the Merrill-Palmer tests. The training of the child at home and at school was then planned to suit his individual capabilities. Parents were taught to understand the child's disability and to refrain from expecting too much of him. He had to be allowed to progress at his own rate. Schooling was planned to meet the particular needs of the child. Those of the higher grades might attend ordinary schools in a lower class than their age group. Others might be taught in special or opportunity classes. There was still a large group of children who were unable to do formal school work but who could be taught manual occupations. Available facilities for training of that group were inadequate. Institutional care was usually necessary for those in the lower grades, who neded continuous supervision and would never be able to become independent citizens. Many such mentally deficient children could be taught to work within the precincts of the institution and to lead happy, useful lives. The aim of education and training at all levels was to develop and use all those potentialities that the child possessed.

A. R. Phillips (Victoria) discussed the subject from the point of view of mental testing and special educational facilities. He said that the raw intelligence quotient could be misleading, and psychologists preferred to give reports evaluating their findings. As a diagnosis of "feeble-mindedness" might result in certification of the child as a mental defective, the greatest care in examination was necessary, and when the "statistical" criterion of deficiency was used difficulties in classification arose which were avoided by the British practice of using the "social" criterion. The lack of sharp distinction between the feeble-minded and the merely dull made classification difficult on intelligence tests alone. Since mental deficiency was legally defined in social terms, instruments to measure social competence would help, and such tests now existed; however, no combination of tests could replace the complete study of the child by anamnesis, physical examination, social investigation and technical and laboratory aids.

Referring to special educational facilities, Dr. Phillips said that about 10% of school children were unsuitable for ordinary classes. For the merely dull opportunity grades were provided, with post-primary courses for older children and correspondence courses. Feeble-minded children might attend special schools daily, or enter residential schools such as those at Glenfield (New South Wales) or Travancore (Victoria).

Dr. Phillips went on to say that the best institution was a poor substitute for even a mediocre home, and for a child to be mentally defective was not necessarily a reason for its placement in an institution. The combination of prudence, decency and simplicity displayed by some defectives who had made their own way from an early age was completely admirable, and worldly experience was something no institution could give; however, the backward adolescent who earned his own living usually needed a shelter, and a hostel could provide it. Such projects as kindergartens, occupation and play groups and clubs could be built around the core of opportunity class, special school and hostel. Clinics for backward children indexed all those resources, and the information was at the service of the inquiring doctor.

J. Williams (Victoria), opening the discussion on backwardness, quoted John Hunter as saying that "definitions are damnable". He regretted that it was so difficult to define the subject of the symposium. He could not agree to the inclusion of low-grade defectives such as cretins and mongols as backward children. He felt that the first two speakers had both regarded mental deficiency as a single entity. Dr. Phillips had rightly stressed the value and limitations of intelligence tests, and it was of course wrong not to make use of these. He himself would define "backward children" as those who were so because of some removable or modifiable disorder—for example, such factors as deafness, speech defects or mild spasticity. It was not sufficient for a child to be able to hear only loud noises. Audiometric testing was essential. Unless children could hear ordinary speech, deafness would need to be modified by the use of hearing aids *et cetera*. Children with speech defects were often also partially deaf. It was a waste of time giving speech therapy to the mentally defective. The job of the therapist was to modify the poor speech of the normal child. In Dr. Williams's opinion the average intelligence of spastic children was well below normal, and intelligence quotients of 80 to 85 were commonly found; they also could be improved by suitable training. Adequate attention to the emotional background was of great importance in ensuring the full development of a child's potentialities. From the clinical point of view backwardness of that type was of much more importance than gross mental defect.

J. Glynn White (Victoria) said that he would confine his contribution to the discussion to the possible factors operating before the ovum was fertilized and those operating in the ante-natal period. He said that mothers of children with cerebral palsy had had approximately 35% more infant loss, in pregnancies previous to the birth of cerebral palsy children, than the population in general; also mothers of congenitally malformed offspring often experienced more or less prolonged periods of reproductive infertility. No one could doubt that hereditary weakness in the germ plasm might give rise to a certain proportion of such cases; but surely the general health, nutritional state and environment of the parents contributed in some

way. "Placental insufficiency" caused by abnormal conditions in the placenta or umbilical cord, which interfered with adequate communication and interchange between the maternal and fœtal circulation, producing amongst other things fœtal anoxia, must affect the development of the fœtus and certainly contribute to the hazards of the birth process and neonatal period or the future health of the child. Cerebral palsy, a condition which was probably commoner than was generally realized, might result from fœtal anoxia occurring at a critical stage. Dr. White asked whether anoxia occurring at a critical stage in development could not also irreparably damage those cells of the central nervous system concerned with intellect *et cetera*. In that case a proportion of backward children with no obvious locomotor handicap might also be attributable to intrauterine factors. Until obstetricians and pædiatricians worked more closely together, until it was fully realized that the newly born baby had already a past history of 280 very important days, and until the hereditary and birth trauma factors were viewed in their proper perspective, Dr. White considered the incidence of backward children would not be materially reduced. In conclusion, Dr. White quoted Eastman to the effect that there appeared to exist a relationship between stillbirths, neonatal deaths and cerebral palsy. The pattern of factors which influenced infant loss seemed to behave in a similar manner with regard to cerebral palsy.

Dr. Southby, in reply, said that he considered that one should avoid the use of the word "birth trauma" out of fairness to the obstetrician. It was better to say simply that the child suffered from cerebral palsy. He agreed that the response to thyroid therapy was very varied and that the outlook was uncertain. He had seen one mongol child reach grade VI in the ordinary school classes, but in that case both parents were school teachers and might have helped considerably. In taking head measurements it was wise to associate the circumference with the coronal measurement—they were usually to be found in the proportion of three to two.

M. T. COCKBURN (South Australia) did not agree with the use of the word "mongol". He said that it was known to the public and associated in their minds with disaster. He preferred to use the expression "developmental retardation", which he thought was kinder.

ELLEN KENT HUGHES (Armidale, New South Wales) asked whether any figures were available for the progress of adolescent backward girls in institutions as compared with those retained in private homes. She found the latter to be a big problem in general practice. Such girls tended to get on to the streets.

Dr. Phillips, in replying to Dr. Kent Hughes, said that he was sorry he had no comparable figures. He added that although some pathological basis was being demonstrated in many backward children, there was still a large group of high-grade defectives in whose brains no pathological changes were found. They often came from moron-type families and the condition must be regarded as genetic. In view of their poor home conditions, children of that type were best given special shelter outside their homes, especially when adolescent.

R. A. R. GREEN (New South Wales) spoke of the early recognition of backward babies; the parents wanted a forecast as soon as possible. He asked the speakers whether one could make that forecast on comparative data; for example, if the child had made nine months' progress in twelve months of life, was it fair to use that as an estimate of his future development?

A. P. DERHAM (Victoria) said that he had been associated with a group of psychologists who had adopted an arbitrary differentiation in their definition of the words "backward" and "retarded", using the former term to mean "inherent defect not certifiable" and the latter to mean backward at school for any sort of cause, possibly emotional or physical.

MARGARET TROUP (Victoria) said that she wished to put in a word for mongols, who did most of the chores in the institution for which she was responsible. Without them she felt sure that that home would not be able to get its work done.

MARY DE GARIS (Victoria) asked whether any speaker knew of great adolescent development in backward people. She had thought some seemed to improve remarkably when they reached their teens, and she wondered whether those taught especially to use their hands developed more normally.

Dr. Arden, in reply, said that he had taken the definition of backwardness to be that of the mother who came to his rooms with a child who she said was "backward". This definition might include anything from a deaf child with normal intelligence to a hopeless idiot. Speaking of the early diagnosis of mongolism, he said that he examined many babies at birth who might possibly be regarded as mongols. With the passage of time those children invariably developed into mongols. He could not remember any instance in which a child regarded as a "? mongol" at birth subsequently appeared to be normal.

Dr. Hamilton, in reply, said that one should use the word mongol because it would be told to the parents anyway. It was more important to do it kindly. Children who were only slightly backward often appeared to be normal during the first year of life. He agreed with Dr. Troup that mongols well trained could do a great deal of useful work, but they could never become independent. The apparent increase in the intellectual capacity of backward children in their teens sometimes had a psychological cause, being an improvement in performance in response to a change in environment rather than a change in intellectual capacity. The child might develop a better estimate of himself and his capacity. He quoted the case of a boy who had been a "dud" at school and had eventually won first-class honours at the university after an emotional adjustment had been made in his home.

R. T. BINNS (South Australia) said there was no accurate definition of the many terms synonymous with backwardness. He thought that there were perhaps in the community 5% of children too good for mental institutions, yet not good enough for school work, needing special care and attention. He thought it was risky to predict the progress of a child before he reached the age of three or four years, because great changes could occur.

Dr. Phillips, in reply, said that the word "retarded" in the Victorian *Mental Defectives Act* was synonymous with feeble-minded; it was also used as a euphemism for all sorts of backward children, as for instance, in homes which housed mostly imbeciles. He agreed that it was a pity that the word "mongol" was used, because it was not flattering to Asiatics. He preferred the word "mongoloid". He had not seen any sudden increase in capabilities or performance at puberty, and as the cortical cells ceased growing at the age of fourteen years, he did not think it was to be expected. One did, however, occasionally find a reversal of form in younger age groups with a dramatic improvement in performance.

LINDSAY DEY (New South Wales), from the chair, after summing up the papers, made one point about the relatives of the mentally deficient child in the home. He said that he himself was firmly convinced that when there were other children in the home low-grade defectives should be removed to institutions, in the interests of their brothers and sisters. He could think of many cases in which tragedies occurred because this had not been done.

The Problem of the Large Head in Childhood.

R. S. HOOPER (Victoria) discussed the problem of the large head in childhood. He said that an historical review of the treatment of hydrocephalus showed that the large variety of space-occupying lesions was found in children, at first because nothing was known of the cerebro-spinal fluid circulation, and later because diagnosis of the essential cause of hydrocephalus was inadequate. Causes of enlargement of the head must be recognized so that appropriate treatment might be instituted. Two main

causes of enlargement of the head were expanding intracranial lesions and cerebro-spinal fluid obstruction. A wide variety of space-occupying lesions were found in children, but of those the posterior fossa tumour was the commonest. Cerebro-spinal fluid obstruction might result from expanding tumours obstructing the ventricular system, but obstruction might also be due to developmental strictures and malformations within the ventricular system, while in the subarachnoid space inflammatory exudate, late arachnoidal adhesions following infection or hæmorrhage frequently caused obstruction in the basal cisterns. Finally, venous thrombosis might hinder absorption of cerebro-spinal fluid and promote the formation of hydrocephalus.

Dr. Hooper went on to say that diagnosis of the cause and situation of the lesion depended upon full information obtained from the history of the patient and from clinical and radiographic examination of the head, together with tests which indicated the efficiency of the cerebro-spinal fluid circulation by the passage and excretion of dyes. As final tests, encephalography, ventriculography and high contrast ventriculography with opaque media gave more precise localization of the essential lesion.

Discussing treatment, Dr. Hooper said that in many cases a conservative attitude was adopted, but when the head circumference exceeded 22 inches or the child's condition was deteriorating, operative interference was indicated. Ventricular obstruction was usually overcome by by-passing the obstruction by insertion of tubes, as a Torkildsen's operation. Infants having an obstruction in the subarachnoid cisterns might be relieved by draining the cerebro-spinal fluid in other directions. Dr. Hooper described the new techniques employed to attain this end and discussed their relative merits. He advocated the peritoneo-arachnoid anastomosis for infants, though this might require later diversion of the cerebro-spinal fluid flow to the ureter. In conclusion he said that an improved outlook might be expected for the hydrocephalic child as a result of better diagnosis, earlier correction and the application of new materials and techniques to old procedures.

The Management of Hæmolytic Disease of the Newborn.

ELIZABETH K. TURNER (Victoria) read a paper on the management of hæmolytic disease of the newborn. She first dealt with the prophylaxis of the disease by three measures: (i) determination of the A B O and Rh blood factors of all pregnant women to detect those potentially susceptible; (ii) the avoidance of incompatible transfusion or injection of blood to females before or during childbearing age; (iii) the determination of the Rh genotype of the prospective father. If he was homozygous, all offspring would be Rh-positive; if he was heterozygous, 50% of the offspring would be Rh-negative and thus not susceptible to Rh-antibody. Detection of maternal isoimmunization during the ante-natal period was possible by testing the serum for the presence of antibodies at the first ante-natal visit and again two or three weeks before the expected date of delivery.

Dr. Turner then dealt with the treatment of the infant. She said that at birth the cord should be clamped approximately six inches from the surface of the anterior abdominal wall, and small samples of the cord blood collected for (i) the investigation of hæmoglobin value, (ii) the direct Coombs test, (iii) a serum bilirubin estimation, (iv) determination of the blood group and Rh status of the infant, and (v) the examination of a blood film for erythroblastæmia. The clinical manifestations of hæmolytic disease in the newborn infant were jaundice appearing within the first twenty-four hours of life, pallor, œdema and hepatosplenomegaly, and the onset of kernicterus was indicated by mouthing, drowsiness, rigidity, spasms, vomiting, head retraction, adducted thumbs, irregular respirations, and râles and rhonchi in the lungs. The indications for treatment were based on the cord blood hæmoglobin values (after Mollison). Infants were divided into two groups, mature and immature infants. Of the immature infants, those with a cord blood hæmoglobin value less than 11 grammes per 100 millilitres had a bad prognosis with any form of treatment; those with a cord blood hæmoglobin value of 11 to 15 grammes per 100 millilitres had a better prognosis if they were treated by exchange transfusion; those with a cord blood hæmoglobin value of 15 to 17·5 grammes per 100 millilitres had a kernicterus liability of 1:12, which was reduced if they were treated by exchange transfusion; finally, those with a cord blood hæmoglobin value of more than 17·5 grammes per 100 millilitres were in little danger of kernicterus, and no treatment was indicated. Of the second group—mature infants—those with a cord blood hæmoglobin value of less than 11 grammes per 100 millilitres had a better prognosis if they were treated by exchange transfusion; those with a cord blood hæmoglobin value of 11 to 15 grammes per 100 millilitres did equally well with exchange or early simple transfusion; those infants with a cord blood hæmoglobin value of 15 to 17·5 grammes per 100 millilitres had a kernicterus liability of 1 in 21, and exchange transfusion was recommended only if the mother's previous history had been bad; those mature infants with a cord blood hæmoglobin value greater than 17·5 grammes per 100 millilitres required no treatment and their prognosis was good.

RACHEL JAKOBOWICZ (Victoria), in opening the discussion, said that Landsteiner, when he discovered the Rh factor, could have had no idea what an enormous field his discovery would open. It had now been definitely established that Rh factor in the child's body was not limited only to the red cells. Other tissues sometimes contained Rh factor in large amounts. That applied especially to liver cells and to parts of the brain. The amniotic fluid of Rh-negative babies never contained Rh factor. The placentæ of Rh-negative babies had no Rh receptors. On the other hand, the placentæ of about 10% of healthy Rh-positive babies had Rh receptors and could absorb antibody. Of the placentæ of affected Rh babies, 100% contained Rh receptors and Rh antibodies. Those figures were in accordance with the known fact that if a transfusion of Rh-positive blood was given to an Rh-negative woman, antibodies would develop in about 50% of instances. On the other hand, an Rh-positive pregnancy in an Rh-negative mother led to the formation of antibodies in only about 5% of cases. That was evidently because Rh receptors in the placenta were necessary. Liver and brain damage was quite certainly due to an antigen-antibody reaction at that site. Liver and brain cells could absorb Rh antibody. Dr. Jakobowicz had made the observation that after an exchange transfusion, the blood of the baby was in all respects similar to that of the donor, except that it still contained antibodies. That suggested that they must have been washed off some of the fixed tissue cells of the baby. There was no correlation between the strength of the Coombs test reaction and the maternal antibody titre.

A. E. SHAW (Queensland) asked Dr. Turner whether Dr. Mollison had considered all the factors in the history of the cases he investigated before deciding that early termination of pregnancy was of no value. It was necessary to know the practice in the country with regard to the registration of births. He wondered also whether Dr. Mollison had considered the importance of the experience of the operator in performing exchange transfusions. It was his impression that mortality rates always decreased after the operator had had a few months' experience. Dr. Shaw asked also what Dr. Turner's experience had been with regard to the amounts of blood administered at an exchange transfusion. Before 1948 he had been inclined to use less than 500 millilitres of blood, but found that there tended to be an increase in jaundice after the termination of the transfusion. Now they seldom administered less than 100 millilitres per pound of the baby's weight, and found less jaundice. He objected to the suggestion that 40 to 80 millilitres of blood should be withdrawn before any blood was administered to the baby.

Dr. Turner, in reply, said that she knew nothing of the practice regarding the registration of births in other countries, but she was sure Dr. Mollison would have considered it. She knew that the experience of the operator was all-important. The amounts of blood given to the baby varied with different workers. Walker, of Newcastle, used

80 millilitres per pound of the baby's weight, which gave him approximately an 86% exchange, and he left the baby with a hæmoglobin value of approximately 120%. The early withdrawal of 40 to 80 millilitres of blood was carried out in cases in which there was high venous pressure in the umbilical vein, with the object of avoiding congestive cardiac failure.

F. W. ARDEN (Queensland) asked Dr. Turner if she could explain why the symptoms of kernicterus so frequently came on within a day or two of birth, whereas before birth the *fœtus in utero* had been exposed to the same concentration of maternal antibody. He wondered whether it was due to the increased oxygenation of the baby's tissues after delivery, or to some other factor.

Dr. Turner said that it was not known what factors precipitated the development of kernicterus or other antigen-antibody reaction in the baby's tissue. It might even be due to adrenal failure. ACTH had been administered to babies, but was of no definite value.

N. CUNNINGHAM (New South Wales) asked about the dose of ACTH which Dr. Turner was giving.

Dr. Turner, in reply, said that they were giving 12·5 milligrammes of ACTH twice a day for the first two days, 8·5 milligrammes twice a day for the next two days, and 6·5 milligrammes twice a day for the next two days. The drug was administered orally and the course lasted for six days in all. Cortisone had also been used from the third to the sixth day in doses of 15 to 20 milligrammes twice a day, with the object of "splinting" the baby's suprarenal cortex. She felt that it might help, but could not yet be advocated.

MARY DE GARIS (Victoria) inquired whether there was any danger in permitting the erythroblastotic baby to suckle.

Dr. Turner said that maternal anti-Rh antibodies present in the mother's milk were of no importance.

JOHN MCDONALD (Victoria) inquired whether bilirubin excess was itself conducive to kernicterus.

Dr. Turner replied that Diamond and others had suggested this, but there was no evidence that it caused any harm.

G. KELSALL (Western Australia) said that they had been studying the increased venous pressure that was exhibited by some affected babies, and they blamed it upon an increased potassium content of the blood following destruction of the red cells. They thought that hyperpotassæmia might be the lethal factor. Because of that they were no longer using citrated blood for their exchange transfusions, only heparinized fresh blood, and they thought the results well justified the change. They had had only three deaths in their last 55 exchange transfusions. In spite of Mollison, he thought there was a beter chance of saving the infants if labour was induced earlier. He could not be satisfied that it was detrimental to bring on labour at the thirty-sixth to the thirty-seventh week. He could not agree with Mollison that the hæmoglobin level in the cord blood was itself an indication whether to perform exchange transfusion or not. In his experience kernicterus usually occurred in those babies with a relatively high hæmoglobin level and a high antibody titre.

Dr. Turner said she could only reply that so far as she knew the best figures had been obtained by Dr. Walker, of Newcastle, and that he preferred stored citrated blood rather than heparinized fresh blood for performing his exchange transfusions.

Results of Treatment of Tuberculous Meningitis with Streptomycin.

JOHN BEVERIDGE (Sydney) discussed the treatment of tuberculous meningitis with streptomycin at the Royal Alexandra Hospital for Children, Sydney, from May, 1947, until December, 1951. He said that the total number of patients was 57, of whom 16 had survived so far. In all except three cases the diagnosis was bacteriologically proved in life or at autopsy. In the three cases mentioned there was no reasonable doubt as to the diagnosis. Five of the 57 patients were not treated because they died very shortly after admission to hospital. Treatment was by the intramuscular and intrathecal administration of streptomycin. Since late in 1949 PAS had been given orally as a routine. In 1949, only a short course (four weeks) of intrathecal therapy was given. That period was correlated with the highest death rate. In 1951 more intensive intrathecal therapy was given, with considerable improvement in the results. Tuberculin (in four cases) had been disappointing. Of the 57 patients, 28 had miliary tuberculosis, and only three of them survived. Of the 29 with non-miliary tuberculosis 13 survived. There was no correlation between the prognosis and the length of history. The worse the patient's state of consciousness on his admission to hospital, the worse were the prospects of recovery. For patients aged under two years the outlook was much worse than for those older. Of the 16 survivors, 14 were normal mentally. Four children had persisting extrameningeal tuberculosis.

S. E. J. ROBERTSON (New South Wales), in opening the discussion, agreed that tuberculous meningitis was a depressing disease. He said that now that something could be done about it, improvement might come in the future from earlier diagnosis. He inquired what one should do with a child whose cerebro-spinal fluid contained a few cells, an increased amount of protein and less than 40 milligrammes of sugar per 100 millilitres. He himself considered that such a child should immediately be treated as suffering from tuberculous meningitis. He asked what was the best method and dosage for giving intrathecal streptomycin therapy. Various schemes were in vogue.

STANLEY WILLIAMS (Victoria) said that he did not think that Dr. Beveridge need feel quite so gloomy. At the Melbourne Children's Hospital they had only nine children alive from 40 treated for tuberculous meningitis, and of the nine only five were normal. He could not suggest any measures for improving the figures, except that streptomycin should be continually administered either intrathecally or intraventricularly for as long as four months if necessary. In Melbourne they were coming more and more to seek early surgical advice. He felt that there was a place for the intraventricular administration of streptomycin through burr holes in the skull. He used to seek Dr. Hooper's opinion as to which was the best route to follow. Dr. Williams felt that the arterial blockage commonly seen in tuberculous meningitis was an important factor in the prognosis. They had found intrathecal therapy on six days a week to be distressing and not quite necessary, as the action of the drug lasted almost forty-eight hours. Their own plan was to give it on five days a week.

R. S. HOOPER (Victoria) said there was an advantage in making burr holes and so giving access to the ventricles at an early stage of the disease. It enabled one to ascertain the degree of dilatation of the ventricles and to give intraventricular therapy as required. A large proportion of the children required streptomycin by this route at one stage or another. He felt that some hope of improvement lay in attempting to overcome blocks in the subarachnoid space. The new drug nicotinic acid hydrazide might further depress the mortality rate.

R. WALL (Tasmania) said that in a perverted way he had found Dr. Beveridge heartening, as in their small series the mortality was 100%. Dr. Robertson in Newcastle (England), who had 60% of survivors, insisted on giving streptomycin intrathecally until the cerebro-spinal fluid was normal, even though this might mean treatment for seven or eight months.

Dr. Beveridge, in reply, said that he would be worried about using the cerebro-spinal fluid sugar level alone or any other arbitrary line for starting therapy. He agreed that it was hard to decide when the time had come to cease therapy. If one waited until the cerebro-spinal fluid was absolutely normal, that probably meant too long a period of treatment. The making of burr holes in the skull was a very wise measure. He had as yet no experience of nicotinic hydrazide.

M. L. POWELL (Victoria) inquired whether one ever could get the cerebro-spinal fluid normal while giving streptomycin intrathecally.

Dr. Beveridge agreed that they in New South Wales usually stopped earlier, while there were still a few cells in the cerebro-spinal fluid; but he did like to have the sugar and chloride contents normal.

The Diagnosis of Anæmia in Childhood.

JOHN COLEBATCH (Victoria) discussed the diagnosis of anæmia in childhood. He said that an ætiological diagnosis must come before treatment. The first step was to make certain that anæmia was present. A knowledge of the normal blood picture at the different age periods of childhood was essential. The history, clinical examination, colour index and stained blood film provided the minimum basis on which the type of anæmia must be determined. The limitations of the colour index alone needed to be fully appreciated. In many cases the hæmatocrit must be used for accurate calculation of the mean cell size and hæmoglobin concentration. The latter was valuable in childhood as the key to iron therapy. Bone marrow puncture was usually essential for the diagnosis or exclusion of megaloblastic anæmia, aplastic anæmia and leuchæmia, and in every obscure type of anæmia; it might also be helpful in many other conditions. Malnutrition and infections were the commonest causes of anæmia in childhood, and they were frequently present together; infections led to malnutrition and *vice versa*. A careful history and examination for malnutrition were indispensable to the complete diagnosis of anæmia in childhood.

STANLEY WILLIAMS (Victoria), in opening the discussion, asked Dr. Colebatch whether he had had any experience of iron-resistant iron-deficiency types of anæmia in which intravenous treatment was required.

Dr. Colebatch said that he had never found such a case. He thought that most of the apparent cases were in effect deficiency anæmias associated with steatorrhœa or infection or possibly inadequate oral dosage of iron.

S. E. J. ROBERTSON (New South Wales) commented on the slide Dr. Colebatch had shown, in which neuroblastoma cells were present in the marrow, and asked whether that was a common finding.

Dr. Colebatch said that secondary deposits of neuroblastoma had to be widespread to cause anæmia, and in that case it was likely they would be found in serial marrow smears.

D. G. MCKAY (South Australia) asked what form of iron therapy Dr. Colebatch preferred to use.

Dr. Colebatch said that they were still using Helen McKay's original prescription, containing 1·5 grains of ferrous sulphate to the drachm in an acidified mixture. He thought that the minimum dosage should be one-fifth of a grain per pound of body weight per day. Half of that dose was adequate for prophylaxis.

Stanley Williams spoke again. He referred to the table of hæmoglobin variations at different ages that Dr. Colebatch had shown on the screen, and asked what was the degree of standard deviation.

R. J. WALSH (New South Wales) said that the standard deviation was higher in young children. For adults it was one gramme, the adult range of normality thus being ± 1·0 gramme of hæmoglobin per 100 millilitres of blood on either side of the mean figure. At birth it would be more accurate to take ± 4·0 grammes per 100 millliitres, and at three months ± 3·0 grammes. He also agreed that the intravenous use of iron in adults was seldom necessary, and tended to produce a hæmosiderotic state.

Section of Pathology, Bacteriology, Biochemistry, Experimental Medicine and Forensic Medicine.[1]

President: E. F. Thomson, M.B., Ch.B. (N.Z.), F.R.A.C.P., New South Wales.

Vice-Presidents: J. V. Duhig, M.B., F.R.A.C.P., Queensland; E. S. J. King, M.D., M.S., D.Sc., F.R.A.C.P., F.R.C.S., F.R.A.C.S., Victoria; J. A. R. Miles, M.A., M.D., B.Ch., South Australia; V. A. F. Stewart, M.B., B.S., Western Australia.

Honorary Secretary: G. G. Harkness, M.B., B.S., Victoria.

President's Address.

EDGAR THOMSON (New South Wales) chose as the subject for his president's address "The Role of the Laboratory in the Control of Antibiotic Therapy". He said that clinical pathology and the clinical pathologist were, and must be, an integral part of the clinical sphere and must exert their influence on the diagnosis and treatment of the patient. Throughout the previous twenty-five years the technical procedures carried out in the clinical laboratory had undergone frequent change, as had the influence of the findings on the clinical scene. The clinical pathologist was today an individual who should frequently be called to the bedside to see the patient and to discuss with the physician or surgeon the clinical problem. After the introduction of antibiotics into the field of therapeutics, it was thought that the work of the clinical pathologist would be greatly reduced and that the bacteriological investigation of cases would be no longer necessary. Instead the reverse had happened, and Professor Garrod, of London, had recently remarked that he was appalled by the amount of work the clinical pathologist had to do for the adequate laboratory control of chemotherapy. This role of the clinical laboratory might be considered under the following headings: (i) The clinical pathologist, who should be an integral part of the medical or surgical team. (ii) The identification of the causal organism, which was so important because the nature of the infection could be taken as a guide to the identity of the infecting organism. (iii) The determination of the antibiotic susceptibility of the causal organism because of the increasing incidence of antibiotic-resistant strains of micro-organisms. (iv) The assay of antibiotic in body fluids. (v) The determination of the incidence of antibiotic-resistant strains because of their importance in relation to cross-infection. (vi) The availability of laboratory services to the medical practitioner in relation to control of antibiotic therapy. There were two groups of patients to be cared for: (*a*) those treated by the practitioner outside of hospital; (*b*) in-patients and out-patients at hospitals. The latter were well catered for; the former were not. It was the duty of the proper health authorities to extend existing facilities at hospitals and to provide additional laboratory facilities in country centres, so that every practitioner would have the services of either a private pathologist or a hospital pathologist readily available.

[1] The meeting of the Section of Pathology, Bacteriology, Biochemistry, Experimental Medicine and Forensic Medicine with the Section of Public Health, Industrial Medicine, Tropical Medicine and Aviation Medicine has been recorded.

GLEN BUCKLE (Victoria) said that many methods of sensitivity testing had been devised. The one chosen needed to be quick and capable of dealing with large numbers of specimens. It was an advantage if the sensitive organisms were divided into moderately and lightly sensitive groups, but the gradations did not need to be finer. Sensitivity testing at the Alfred Hospital occupied approximately the whole time of one technician. The expense was more than offset by the savings effected.

Mr. Buckle went on to say that penicillinase-producing staphylococci were not formed because penicillin was used. They had existed before penicillin came into use and had increased in number because aseptic and dressing techniques had not been good enough. Sensitivity tests should be arranged to disclose them and staphylococci apparently of intermediate or high resistance to penicillin should be suspected of being penicillinase producers. A number of kinds of bacteria had remained sensitive to penicillin, and it was often said that one need not test them. That was true in general, but it was not known how long that fortunate state of affairs would continue. Still less was it possible to rely on the continual use of the newer antibiotics without laboratory control, for experience with them had been much less. Resistant strains would have been accepted as the cause of many failures of therapy if sensitivity testing had not shown that to be untrue.

Mutations might occur at any time. In the absence of antibiotics, resistance apparently did not endow organisms of the species which usually were sensitive with any particular advantage, and they were present only in minute proportions. Low concentrations of antibiotics killed or inhibited sensitive bacteria and might allow resistant forms to multiply. Except in the case of streptomycin, resistance was acquired in a series of infrequent small steps, and it was well within present powers to prevent it by adequate dosage.

J. E. MCCARTNEY (South Australia) said that as a result of the use of sensitivity tests in the control of antibiotic therapy, the clinicians now desired quick results from the clinical pathologist. The impatience shown at times was not quite fair, as the clinical pathologist could not always give a complete answer without due consideration. He felt that a good deal of the sensitivity testing was perhaps a waste of time, in that many of the organisms tested might not be pathogens. As an example of that he quoted the testing of urine, which often showed a growth of organisms which were not actually infecting the urinary tract. He thought it was most important that in addition to the actual technical procedures carried out in the laboratory, there should be the closest cooperation and discussion between the clinician and the clinical pathologist. He referred to a technical point in sensitivity testing which had been introduced by Fairbrother, who used coloured blotting paper to prepare the paper disks, so that the antibiotic could be identified by its particular colour.

T. GIBLIN (Tasmania) said that he had been extremely interested in the subject of the address which had been given, and as he was the only clinician present he would like to take part in the discussion. He said that in the practice of urology in Hobart it had been the custom for the past three years to control all antibiotic therapy with sensitivity tests. According to the method used, it was possible to obtain a result in twelve hours. He felt that it was not nearly as important to know the nature of the organism as to know its sensitivity to the various antibiotics. He referred to the wide variation in susceptibility of various strains of *Bacterium coli* to the antibiotics. He had found that in his experience there was almost a complete correlation between the results of the sensitivity test and the response of the patient to antibiotic therapy.

J. V. DUHIG (Queensland) referred to the side effects of antibiotics and stressed the increase in mycotic infections since antibiotic therapy had come into wide use. He had had five cases of systemic mycoses, all of which had had previous treatment with penicillin. He pointed out that there was no statement in the literature as to the effect of penicillin on fungi, and he wondered if there was indeed any effect.

JEAN TOLHURST (Victoria) said that she felt that in urinary tract infections it was important to identify the organism, and also to correlate the bacterial flora with the microscopic examination of the urine. Two facts, of course, should always be borne in mind—the presence of contaminants and the possibility of changing bacterial flora. With regard to the concentration of antibiotics in the urine, she had found that some clinicians thought that because there was a high concentration of antibiotic excreted in the urine, smaller therapeutic doses could be given. That was not so, and the ordinary normal therapeutic doses should be used. She pointed out that in her own experience she preferred to incorporate the antibiotic in the media rather than use the paper disk method for sensitivity testing. She also carried out sensitivity tests using two concentrations of antibiotic, which she felt did give some guide as to dosage.

Dr. Giblin spoke again, in reply to Miss Tolhurst, and said that in Hobart sensitivity tests were carried out in broth cultures, and the concentrations of antibiotics used were equivalent to the blood level obtained in therapy. The end point was the point at which there was complete suppression of growth.

HILDA GARDNER (Victoria) said that she had found a great increase in the incidence of pneumococcal infections in 1952. That was interesting, because the general consensus of opinion had been that pneumococcal infections were seldom seen. The increase had been in both disease processes and in the carrier state. It was her practice to type all strains of pneumococci. There was no definite type incidence. She referred to recent work of Dr. Abraham, of Oxford. The problem of antibiotic resistance had not been fully worked out, and in some instances was probably not related to penicillinase production. She stressed the importance of keeping complete records of sensitivity tests. Resistant strains appeared to come from superficial lesions which were the result of hospital cross-infection. In closed lesions the staphylococcus appeared to remain sensitive.

Hepatitis in Childhood.

JOHN PERRY (Victoria) read a paper dealing with the histological diagnosis of hepatitis in childhood. He drew attention to the criteria for the diagnosis of non-suppurative hepatitis, and emphasized the fact that while that diagnosis had definite histological significance, the ætiological agent was only vaguely suggested. Dr. Perry thought that there was a tendency to rely on the assumption that the condition was of viral origin. He presented cases illustrating the histological picture and clinical behaviour of infective hepatitis of virus origin in children occurring soon after birth. In one instance it was possible that the condition represented intrauterine transmission of a disease. Dr. Perry presented other examples of cases in which the histological diagnosis was one of chronic non-suppurative hepatitis. He thought that these illustrated the inadequacy of such a final diagnosis in that no cause for the disease had been clearly established. Chronic non-suppurative hepatitis in one child had been labelled as probably of viral origin until a sibling had been admitted to hospital with a similar clinical condition. Investigation had revealed that the second child was suffering from galactose intolerance. Dr. Perry suggested that in the livers of children showing evidence of scarring or of liver cell hyperplasia a diagnosis of chronic infective hepatitis should not be accepted until other conditions had been adequately excluded.

R. MOTTERAM (Victoria), in opening the discussion, said that he thought that Dr. Perry had made a significant contribution to the study of hepatitis. He referred to the non-specific picture, and he felt that the term "chronic non-suppurative hepatitis" should be used when speaking of chronic virus hepatitis. He thought that the pathology of hepatitis in adults was a little easier to understand. There were well-accepted biochemical standards in relation to hepatitis in adults, so that the histopathologist was rarely the final court of appeal. In children the biochemical findings often suggested obstructive jaundice, when indeed

the disease was hepatitis. He referred to the two cases of galactose intolerance which had been described, and he thought that in adults, because of the high fat content, there might have been difficulty in interpreting these cases. However, in children the picture seemed to be easier.

A. JACKSON (Victoria) said that because the intrahepatic bile ducts were smaller in children, obstruction was more likely to occur.

J. A. R. MILES (South Australia) wondered whether the small bile thrombi seen in the bile canaliculi in hepatitis would give biochemical findings suggestive of obstructive jaundice. He referred to the problem of jaundice in menopausal women, and described two big epidemics, one in Copenhagen and one in Basle. He had seen frequent cases in England and two in Adelaide.

In reply to Dr. Miles, Dr. Perry said that menopausal jaundice was not usually seen in a children's hospital.

The Effect of Long-Continued Administration of Adrenaline.

DAVID MONK ADAMS (New South Wales) presented a paper, prepared in conjunction with Dr. D. Fraser, from the Banting and Best Department of Medical Research, University of Toronto, Canada, on the effect of long-continued administration of adrenaline upon the carbohydrate metabolism and cardio-vascular system of the dog. He said that it had been suggested that conditions of stress might be the causes of such diseases as *diabetes mellitus* and hypertension. In order to test this hypothesis six dogs of both sexes were subjected to both the specific and non-specific stresses resulting from injection of adrenaline, every four to five hours, day and night for seventeen to eighteen weeks. After preliminary investigations, injections were begun and dosages increased until a maximum of one milligramme of adrenaline was being given, subcutaneously, for each kilogram of body weight. Studies in the blood sugar response and urinary glucose excretion showed that within a few days of commencing the injections glycosuria would almost completely disappear, and even huge doses of adrenaline would cause only a slight rise in blood sugar level. After a rest period without injections that pattern could be repeated. Final estimations of liver, heart and muscle glycogen values made four hours after the last injection showed that the failure of response of the blood sugar was not due to a lowering of the amount of glycogen in any of these tissues. During rest periods in the course of the experiment it was repeatedly found that the glucose tolerance was better than before the injections were instituted. Final estimates of the insulin content of the pancreas showed normal figures.

Dr. Adams said that in contrast to the progressive failure of response on the part of the carbohydrate metabolism, it was found that the cardio-vascular system continuously responded as shown by changes in the heart rate and rhythm. Measurement of the blood pressure (direct) showed normal values at the termination of the experiment; however, histological examination of the vascular system showed some small changes in the arterioles of the kidney. While those were suggestive of incipient hypertension, nevertheless such findings might be found normally in older animals. Finally, it could be stated that despite the prolonged state of stress, no evidence was produced to suggest that it caused the slightest tendency towards *diabetes mellitus*.

R. B. BLACKET (New South Wales), in speaking to Dr. Monk Adams's paper, referred to work that he had done on rabbits using adrenaline and noradrenaline given intravenously. He said that the animals died, but he had never found out why they died. The deaths did not appear to be related to disordered carbohydrate metabolism. The animals did show a transient hypertension with both adrenaline and noradrenaline. He referred to the work of Byrne and Dale on adrenaline shock in relation to battle casualties.

Murray Valley Encephalitis.

A symposium was presented on Murray Valley encephalitis.

H. MCLORINAN (Victoria) gave a clinical description of the 1951 epidemic of Murray Valley encephalitis. He said that the early recognition by two provincial medical superintendents that an unusual type of brain disease was occurring, was primarily responsible for the prompt organization in January, 1951, of a team to investigate the condition. In an amazingly short period of time the virologists isolated a virus to which the term Murray Valley encephalitis virus was applied. Clinically the disease was typical of an acute viral encephalomyelitis, and it was considered to be virtually impossible on clinical grounds alone to distinguish it from Japanese B encephalitis, St. Louis encephalitis or Australian "X" disease. The isolation of the virus confirmed the fact that the disease belonged to that group, the members of which were caused by viruses carried by arthropod vectors.

The onset was usually abrupt with intense headache, fever, lethargy and drowsiness or irritability. In practically all cases some degree of mental confusion developed. Cervical rigidity was present in all cases and pleocytosis in the cerebro-spinal fluid was also constant. Early improvement was an unfailing indication of favourable prognosis. Many patients, however, passed into deep coma, and a high proportion of such patients died. Some developed bulbar signs, others showed evidence of transient and varying upper and lower motor neuron lesions. Of the 40 cases diagnosed clinically, 25 were in children aged under fourteen years. There were 17 deaths, 11 being of children. The incubation period appeared to be between one and three weeks.

Dr. McLorinan went on to say that many persons reported subsequently, having suffered from vague illnesses with headache and stiff neck. No case occurred, however, in which it was possible to follow up such a mild illness with serial "bleeds". It had to be stressed that the presence of the specific antibody discovered in a single test some time after an illness did not provide valid evidence that the recent illness had been due to the virus. Serological proof was still lacking that such mild cases did occur in the epidemic under discussion.

Referring to subclinical infections, Dr. McLorinan said that the excellent work of the epidemiologists and serologists who undertook mass surveys for the presence of complement-fixing antibodies revealed that quite a number of people in the epidemic areas had apparently suffered from subclinical infections. Those cases were obviously of epidemiological and immunological interest.

Dr. McLorinan said, in conclusion, that it was necessary to report on the condition of survivors of the disease fifteen to eighteen months after the onset of illness. Comparison with the tragic sequelæ associated with *encephalitis lethargica* of the 1930's was inevitable. Results of a follow-up examination carried out by the Mental Hygiene Department of the Victorian Health Department had not yet been completed. Early reports indicated that many of those severely affected had remained gravely incapacitated. However, the tendency was towards gradual improvement. In moderate cases the patients had in the main recovered completely without the progressive moral degeneration which was characteristic of *encephalitis lethargica*.

J. A. R. MILES (South Australia) read a paper in which he described the characteristics of a strain of virus isolated from a sporadic case of fatal encephalitis occurring in a rural area north of Adelaide in the summer of 1951. The virus had been shown to be highly pathogenic for mice at all ages, and to cause easily observable disease in domestic ducks, horses, lambs, magpies, monkeys and silver gulls when they were inoculated by an appropriate route. It had also caused fatal disease in suckling rats under one week old, but not in rats of greater age, and in embryonated hen's eggs and fourteen-day-old chicks, but not in adult cockerels. In guinea-pigs pyrexia had occurred regularly four days after intracerebral inoculation, but there had been no other sign of ill health, although the animals produced high titre antibodies. In rabbits and pigeons the only evidence of multiplication of the virus had been the development of high titre antibodies. No proof of virus multiplication in brush-tailed opossums or a kangaroo

had been obtained. Filtration experiments suggested a particle size of between 20μ and 50μ for the virus, and survival experiments had shown that the virus could survive heating for 51° C. for thirty minutes, but not 56° C. for fifteen minutes. Serological evidence was produced that the virus was identical with that causing the outbreak of Murray Valley encephalitis and that it was related to but very different from Japanese B and St. Louis viruses. Dr. Miles discussed the possible relationship to the virus of Australian "X" disease, and, on the basis of the pathogenicity of the virus for different species and the pathology of the lesions as well as epidemiological considerations, he considered it probable that the viruses were the same.

E. L. French (Victoria) described laboratory studies of the Victorian virus. He said that from an outbreak of encephalitis in the Murray Valley districts of Victoria in 1951, 17 persons had lost their lives and 23 others had suffered from a more or less severe illness. From two of those cases and a third occurring at Narrabri in New South Wales, a virus had been isolated which on serological and epidemiological grounds was shown to be the ætiological agent. The virus was most readily isolated on the chorio-allantoic membrane of developing chick embryos, where it produced well-marked pocks. Heavily infected chorio-allantoic membranes when extracted with saline yielded a satisfactory complement-fixing antigen. The virus produced fatal encephalitis in mice, monkeys and sheep, and neutralization tests could be carried out, suckling mice and the intraperitoneal route of inoculation being used. Serologically the virus of Murray Valley encephalitis (MVE) was related to, but not identical with, Japanese B encephalitis. Suitable preparations of "MVE" virus from suckling mouse brain contained a hæmagglutinin of newly hatched chick cells. This hæmagglutinin, which was being actively studied, was specifically neutralized by the sera of patients recovered from "MVE" infection and immunized animals. Mr. French's paper was illustrated by slides of chick embryos infected with "MVE" virus.

S. G. Anderson (Victoria) read a paper entitled "The Contrasting Epidemiological Pictures in 1951 and 1952". He said that after the outbreak of Murray Valley encephalitis in northern Victoria early in 1951, serological evidence had been obtained of widespread infection of humans, horses and other animals and domestic and wild birds, as previously reported. It was believed that mosquitoes transferred the virus. During the 1951-1952 summer, 83 patients suspected of being sufferers from Murray Valley encephalitis had been examined for serological evidence of that infection. None had carried Murray Valley encephalitis complement-fixing antibody. In April, 1952, 85 normal adults had been examined in Mildura in north-western Victoria; none had carried the Murray Valley encephalitis complement-fixing antibody. Early in 1952, 369 sera had been obtained from adults in Kyabram, Nagambie, Corryong, Tallangatta, Horsham and Dimboola in northern Victoria. Only one serum, taken in Corryong, had carried complement-fixing antibody at a titre greater than 1:30. Similarly only three of 287 sera taken in New South Wales from January to April, 1952, carried a significant level of Murray Valley encephalitis antibody, and similarly only two of 361 sera from Queensland yielded positive findings. Fifty domestic fowl sera and sera of six young little pied cormorants (*Phalacrocorax melanoleucos*) had been taken in Mildura in April, 1952; none had carried neutralizing antibody to Murray Valley encephalitis.

Dr. Anderson said that it was believed that the facts recorded indicated that Murray Valley encephalitis virus had not been active during the 1951-1952 summer in northern Victoria, nor probably in New South Wales or eastern Queensland. Dr. Anderson said that probably Murray Valley encephalitis was identical with Australian "X" disease, which had occurred in 1917, 1918 and 1925 in Broken Hill. He agreed with Miles that heavy rainfall probably precipitated the epidemic spread of the virus among humans. He believed that excess rainfall, perhaps in the upper reaches of the Darling River, allowed the spread of Murray Valley encephalitis from further north down into and through the whole of the Murray River basin.

Sir Macfarlane Burnet (Victoria) presented a summary of the epidemiological situation in Australia. He remarked that there seemed little left for him to say. As one who had had no direct part in the work, he felt free to say that he regarded the elucidation of the riddle of "X" disease as the most outstanding piece of combined epidemiological and laboratory work that had been done in Australia. He also paid tribute to Professor J. B. Cleland and his collaborators for the work that they had done in 1918, work which should receive the greatest possible credit as the first isolation of an arthropod-borne neurotropic virus. He went on to say that Murray Valley encephalitis virus was a member of an interesting group which included four fairly closely related forms and two more distantly related viruses, those of yellow fever and of dengue. All were mosquito-borne and underwent a biological cycle in the vector. All were of approximately the same size, and all had major or minor serological factors in common. The subgroup of particular interest consisted of Murray Valley encephalitis, St. Louis encephalitis, Japanese encephalitis B and West Nile encephalitis. The common features of the epidemiology were (i) the high proportion of subclinical infections, (ii) transmission by culicine mosquitoes, and (iii) the high susceptibility of birds to serologically demonstrable infection by mosquito carriers of the virus with almost certainty that the transient viræmia of wild or domestic birds played a major part in providing infection of the vectors. An equally important negative point common to all was the present ignorance of how infection persisted during the winter in temperate climates.

Sir Macfarlane Burnet went on to say that the most impressive finding of the whole series of investigations was the disappearance between the summer of 1950-1951 and the following summer of all evidence of the virus in the Mildura district. It appeared that the conditions for overwintering of the virus were not present in the Mildura area, and that finding might be the clue to the characteristic behaviour of the disease in Australia. All the evidence supported the view that "X" disease and Murray Valley encephalitis were identical. Murray Valley encephalitis appeared to be not an endemic disease of the Murray Valley. It manifested its activity in that region only when the appropriate climatic and ecological conditions in western New South Wales allowed it to move southward from some endemic region further north. Sir Macfarlane Burnet believed that most of the evidence needed to allow effective control of the disease in the south was now available. There was still, however, a great deal to learn. The opinion was strongly held that the virus was spread by a mosquito, probably *Culex annulirostris*, but that opinion must be confirmed or refuted by adequate field and experimental work. If mosquito control was needed, the vector must be known. Such work in the Murray Valley proper could be undertaken only when a new invasion of the region took place. More interesting from the epidemiological point of view were the problems concerned with the endemic persistence of the virus somewhere in the north of Australia and its periodical moves towards more temperate climates. Their investigation, however, would be expensive and time-consuming and perhaps too much for available facilities. The lead might be obtained from more limited studies.

Sir Macfarlane Burnet suggested that persistence of the viruses in nature was confined to tropical or near-tropical areas where mosquitoes capable of transmitting the virus were present all the year round. The characteristic appearance in temperate regions during the summer would be the result of bird movement through a region in which effective mosquito transmitters were present. Foci of infected mosquitoes would be built up by the successive infection of mosquitoes by birds and birds by mosquitoes as birds flew south. The presence of nesting birds in any locality so infected would soon lead to the building up of a high infective potential. That was at present only a speculation, but it did provide a working hypothesis.

E. H. Derrick (Queensland), in opening the discussion, offered some notes on epidemic encephalitis in Queensland in order to help round off the epidemiological picture. He said that the 1917 epidemic had not been confined to the Darling Basin; it had extended also as far as Brisbane and Townsville. In 1922 an epidemic had occurred in south and central Queensland which did not extend into New South Wales. The area involved was bounded roughly by Brisbane, Roma, Springsure and Rockhampton. There were 75 cases with 49 deaths. In 1942, 21 infants under three years of age in Townsville developed encephalitis; nine of the infants died on the second day. There was a suggestion that dengue, then prevalent, was responsible for the encephalitis, but it seemed more likely to have been related to "X" disease and Murray Valley encephalitis. In 1925, cases of encephalitis occurred in Townsville as well as in New South Wales; and in 1951 cases occurred in several parts of Queensland. It would be interesting to endeavour to link up the Queensland outbreaks with periods of excessive rainfall, as had been done so clearly by the Victorian workers.

C. B. Cox (New South Wales) asked whether there were symptoms of disease in birds which showed a viræmia.

Dr. Miles, in reply, said that in his experiments the silver gulls died, the magpies had ataxia on the fourth or fifth day, ducks died, a high percentage of young chickens died, but Indian doves did not appear to be seriously affected.

The Diagnosis of Hæmolytic Anæmia.

G. C. de Gruchy (Victoria), in a paper on the diagnosis of hæmolytic anæmia, said that considerable advances had been made in the knowledge of the pathogenesis and ætiology of hæmolytic anæmia during recent years. His purpose was to discuss the application of that knowledge to clinical and laboratory diagnosis. He said that hæmolytic anæmias might be classified according to their pathogenesis into those of intrinsic origin (congenital or acquired) and those of extrinsic origin. The intrinsic group were further subdivided into those in which the primary abnormality seemed inherent in the red cells themselves, and those in which the plasma and/or tissues of the patient contained a hæmolytic substance secondarily affecting the red cells. On that basis, Dr. de Gruchy presented a detailed classification. He went on to say that in investigation of a suspected case of hæmolytic anæmia it was necessary to ask if the patient had hæmolytic anæmia, what the pathogenesis was, and what the ætiology was. The hæmolytic nature of the anæmia was usually assumed from indirect evidence—evidence of excess blood destruction together with evidence of compensatory hyperplasia of the bone marrow. Breakdown of hæmoglobin liberated by excess red cell destruction usually resulted in icterus, a raised serum bilirubin level, a positive indirect van den Bergh reaction and a raised urobilinogen output. However, as a result of efficiency of the liver in excreting bilirubin, icterus might be absent and the serum bilirubin level within normal limits. Sudden severe hæmolysis might cause hæmoglobinæmia, and if the plasma level exceeded the renal threshold, hæmoglobinuria. The presence of methæmalbumin in the plasma was evidence of intravascular hæmolysis, but its absence did not necessarily exclude it. Rarely, bile might appear in the urine causing a direct positive van den Bergh reaction. Excess destruction also caused anæmia, the severity of which varied with the rate of destruction and the degree of compensatory hypoplasia of the marrow. Anæmia might be absent, especially in chronic cases. Reticulocytosis and the appearance of nucleated red cells in the peripheral blood were usually taken as evidence of compensatory marrow hypoplasia. However, if the bone marrow was hypoplastic, the reticulocyte response might be absent or decreased. Further reticulocytosis might result from other causes and thus, *per se*, was not necessarily evidence of marrow hypoplasia.

Dr. de Gruchy set out a scheme to indicate in summary form the laboratory tests which might be used in the investigation of a suspected case of hæmolytic anæmia. The tests used in any particular case were determined by the clinical history and the results of preliminary laboratory tests. The tests were grouped under the following main headings: (i) Full routine blood examination with emphasis on the examination of a well made, properly stained film for abnormalities of the red cells. (ii) Examination of plasma, red cells and urine for hæmoglobin and its products. (iii) Fragility tests. (iv) Test for hæmolysis in acidified serum (Ham's test). (v) Tests to demonstrate abnormal auto-antibodies: (*a*) tests for non-specific incomplete warm antibodies, (*b*) tests for non-specific warm hæmolysins, (*c*) tests for cold agglutinins, (*d*) tests for cold hæmolysins, (*e*) Donath-Landsteiner tests. (vi) Other serological tests: (*a*) Wassermann test, (*b*) titration of serum complement, (*c*) tests for specific immune iso-antibodies. (vii) Red cell survival studies and/or estimation of fæcal urobilinogen content. Dr. de Gruchy stated that the Coombs test was the most important single test in the diagnosis of acquired hæmolytic anæmia, but "false positive" and "false negative" results might occur unless the test was correctly done. In conclusion, he commented separately on the following specific types of hæmolytic anæmia: hereditary spherocytic hæmolytic anæmia, Mediterranean anæmia (Cooley's anæmia), hereditary non-spherocytic hæmolytic anæmia, atypical familial hæmolytic anæmia, chronic hæmolytic anæmia with paroxysmal nocturnal hæmoglobinuria, primary acquired hæmolytic anæmia, secondary acquired hæmolytic anæmia, hæmolytic anæmia following virus (atypical) pneumonia, chronic hæmolytic anæmia with high titre cold agglutinins, paroxysmal cold hæmoglobinuria and hæmolytic anæmia due to drugs, chemicals and toxins.

R. J. Walsh (New South Wales), in opening the discussion, said that ten to fifteen years previously a diagnosis of hæmolytic anæmia had been uncommon. Today the diagnosis was made much more frequently, and many more patients with hæmolytic anæmia were admitted to hospital for treatment. He emphasized the following points: (i) The necessity for careful control and careful technique in the performance of the Coombs test. "False positive" reactions and "false negative" reactions occurred all too frequently when proper care was not taken, and in that way a most powerful diagnostic test could be made valueless. (ii) The value of the Ashby red cell survival test, which was the most valuable aid in the diagnosis of hæmolytic anæmia—a fact which Dr. de Gruchy had also stressed. (iii) The problematical value of the fœtal urobilinogen test. Dr. Walsh agreed with Dr. de Gruchy's comment regarding that test, and pointed out that it had been estimated that 25% of the fœtal urobilinogen probably came from sources other than hæmoglobin. He was interested in Dr. de Gruchy's comments on the variability of complement in acquired hæmolytic anæmia. He wondered whether this variability was associated with the exacerbations and remissions of the disease. With regard to the identification of spherocytes in the blood smears, he referred to Ponder's suggestion that spherocytes might be identified more easily in wet blood films. He asked Dr. de Gruchy whether he had had any experience of this technique, in which the spherocytes appeared to be easily seen when the coverglass was gently tapped. Dr. Walsh said that he was surprised that the disease known as Cooley's anæmia was not diagnosed more frequently in Australia. The numbers of people in Australia who came from Mediterranean stock were in the same proportion to the general population as in the United States, where Cooley's anæmia was not uncommon. The reason was probably that the diagnosis was not considered, and therefore the appropriate examinations were not carried out. He stressed the importance of recognizing the secondary type of acquired hæmolytic anæmia, which was probably more common than the primary type. The recognition of the secondary type would often lead to the diagnosis of the underlying diseases; the primary type of acquired hæmolytic anæmia was often preceded by a respiratory infection. In conclusion, Dr. Walsh asked Dr. de Gruchy if he had any knowledge of the ætiology of the secondary type, and also whether anything was known as to the cause of acquired hæmolytic anæmia in leuchæmia.

Another speaker asked Dr. de Gruchy the following questions: (i) At what pH were the solutions in saline? (ii) Had he ever observed a positive response to the Coombs test in acholuric jaundice? (iii) Could he explain difficulties in cross-matching which were not explained by the indirect Coombs reaction?

HILDA GARDNER (Victoria) asked Dr. de Gruchy if he had had any experience with the use of ACTH in the treatment of hæmolytic anæmia, and whether he would comment on the reversal of the albumin-globulin ratio.

Dr. de Gruchy, in reply to the several questions, said that the pH of the solutions was 7·4. He had not seen a positive response to the Coombs test in acholuric jaundice, but he pointed out that he had met with few cases of acholuric jaundice in a hæmolytic crisis. He could give no explanation in regard to the difficulties encountered in cross-matching. His own experience with the use of ACTH and cortisone in hæmolytic anæmia was limited, but very good results had been reported from America. He was at the present time studying a patient with rheumatoid arthritis and Felty's syndrome, in which the result of the Coombs test was positive in the presence of acquired hæmolytic anæmia and neutropenia. There had been a good response to cortisone, but no response to ACTH. He was carrying out investigations on the reversal of the albumin-globulin ratio. He pointed out that the ætiology of acquired hæmolytic anæmia was not known, nor was the nature of the substances demonstrable in the serum which were called antibodies, but which might well be abnormal globulins.

Time Since Death.

F. J. CAIRNS (New Zealand) read a paper entitled "Time Since Death", confining his remarks to the changes occurring in the recently dead. He referred first to the sometimes difficult question of deciding whether or not life was still present; for medical practitioners the method of choice was auscultation with the stethoscope, over the trachea for signs of breathing and over the heart for signs of pulsation. Continuous careful concentration under quiet conditions for five minutes was necessary before an opinion was given. Dr. Cairns went on to say that by careful examination of a body an idea could be given of approximately how long it was since death had occurred, but only approximately. When death took place, the circulation of blood stopped and the body lost heat. The heat loss was governed by the ordinary physical loss of convection, conduction and radiation, though under average conditions the majority of the heat loss was by conduction. The presence or absence of fat delayed or hastened the loss of heat. Heat loss was most rapid in the first few hours after death and then declined. As a general rule, the external warmth of the body could still be appreciated for ten to twelve hours after death, and the internal warmth from eighteen to twenty-four hours. The following factors also influenced the rate of cooling: the age of the subject, cooling being more rapid in the very young; the situation, indoors or outdoors, on land or in water; the coverings of the body; the season of the year; the temperature and ventilation of the environment. Generally speaking, cooling when the body was naked was half as fast again as when it was clothed, and in water was twice as fast as on land. Dr. Cairns quoted formulæ of various authorities for determining the rate of heat loss and corroborated an observation of Dr. Keith Bowden that he had never seen an average fall of 3° F. per hour exceeded under any conditions. An important modifying factor was the temperature at time of death.

Turning to the question of *rigor mortis*, Dr. Cairns said that as an indication of the time since death it was falling into disfavour, but he considered that if its limitations were remembered, and if it was considered with other evidence, it was of considerable value, especially when repeated observations could be made spread over some hours. He suggested that as knowledge increased of the chemical changes occurring during the development of *rigor mortis*, laboratory tests of muscle might help to close one of the gaps in the scientific knowledge of what took place after death. Immediately after death, the body was limp and flaccid, but in the next four to twelve hours post-mortem stiffening or *rigor mortis* developed and became fully established. After twenty-four to thirty-six hours it passed off in the same order and did not recur. Cadaveric spasm, which sometimes occurred at the moment of death, was a different phenomenon. Dr. Cairns discussed the factors influencing the onset of rigor under three main headings: (i) Temperature. The onset was accelerated by heat and delayed by cold. (ii) Age. In the very young and the very old the onset was earlier than in adult life, but no accurate time could be stated for each age group. (iii) Muscularity. Other things being equal, the stronger muscularly the person at the time of death, the later was the time of onset of *rigor mortis* and the longer its duration. Conditions affecting the metabolism of muscles tended to hasten the onset. Onset tended to be delayed after poisoning by sedative drugs. Dr. Cairns discussed recent work on the physico-chemical changes occurring in muscle after death. He went on to refer to post-mortem lividity, but regarded it as of only slight confirmatory value in assessing time since death. Of greater confirmatory value was examination of the contents of the stomach and the small intestine when the time of the last meal before death was known. The volume of urine in the bladder might also be of some confirmatory value. In summing up, Dr. Cairns said that the estimation of the time since death was a difficult and often perplexing problem, but after correlation of all the observed facts with a knowledge of the modifying factors, a firm opinion could be given.

J. A. FORBES (Victoria), in opening the discussion, said that, not being a forensic expert, he must select only one portion of the paper, namely, the question of body cooling. He then presented some cooling curves of human bodies after death obtained at the Royal Melbourne Hospital. Recording thermometers had been used to produce continuous tracings of the temperature changes in various parts of the body. The early records had been made with mercury and steel thermometers, the later ones with resistance thermometers. The two methods had produced similar results, although the accuracy of the resistance thermometer was greater, being better than 1° F. Temperatures had been recorded in a variety of sites, the upper part of the abdomen, liver, thorax, rectum, thigh and brain, and all the records shown were of bodies in a still atmosphere in a room or refrigerator. The intraabdominal temperatures had been obtained by placing an element through a puncture wound in the abdomen, in a situation adjacent to and beneath the right lobe of the liver. Certain factors affecting the shape of the cooling curves and the rate of cooling were evident from a study of the intra-abdominal records, namely, continued heat production following death, as shown by a rise in the temperature and also by the flattening of the curves. As Dr. Cairns had pointed out, it was evident that the environmental temperature and also obesity affected the rate of cooling. The initial temperature appeared to have some effect on the site of the curve in relation to other curves on the graph. Over all, inconsistency was the predominant feature of the recordings. If a certain temperature was selected, it might be seen that there was a great variation in the number of hours since death in the various subjects, whilst if a certain time since death was considered, it might be seen that corresponding intraabdominal temperatures were widely scattered in comparable cases, so that estimation of the time of death appeared impossible. The recordings of liver and chest temperatures were similarly inconsistent. Rectal temperature was usually a few degrees lower than intraabdominal temperature and ran roughly parallel to it. The recordings of brain temperature were, however, more hopeful. It might be seen that the curves formed were logarithmic in type and ran in a parallel fashion. That was not surprising when one considered that human beings were fat below the ears and bone above, and also that heads were less variable in size and insulation. That the cooling curves of brain were indeed logarithmic in form, conforming to Newton's law of cooling, was shown on graphs in which the logarithm of the difference

between brain temperature and environmental temperature was plotted against time. The points fell along a straight line demonstrating the possibilities of extrapolation of a portion of a brain cooling curve to determine the time since death. It was intended that further tests be performed in order to assess the relationship of head size, the presence or absence of hair and the effect of immersion and wind to variations in the cooling rate. In conclusion, on the basis of this preliminary study, it might be said that the cooling curves of abdomen, rectum, liver and thorax were too variable to provide a reasonably accurate means of estimating time since death, but the constancy of the cooling curves of brain and their conformity to Newton's law of cooling suggested that further work might provide data on which a fairly accurate determination of the time since death might be made in certain cases.

K. M. BOWDEN (Victoria) said that the difficulties pointed out by Dr. Cairns in attempting to establish the time of death were well known and a problem to all medico-legal pathologists. He had listened to Dr. Forbes's remarks with great interest, and hoped that further valuable information would be obtained from a continuation of this work. For years the work on this subject had been in the hands of overseas pathologists, and their statements had gone unchallenged. A study of the problem in Australia might give much important and new information, and it might well be that the chapter in the text-books on time since death should be rewritten. He illustrated the difficulties referred to by quoting cases from his own experience, in which the time since death was confused because of the environment in which the body had been since death had taken place. He referred to the importance of an examination of the stomach contents in relation to the time of taking the last meal before death.

G. F. S. DAVIES (Victoria) and J. D. HICKS (Victoria) both referred to the difficulties encountered by pathologists in hospitals because of the sudden change in temperatures which the bodies were subjected to when transferred from the wards to the mortuary refrigerators.

A. JACKSON (Victoria) wondered whether the rise in temperature in the brain in the first hour was affected by pyrexia which existed before death.

Two Exhibits of Medico-Legal Interest.

CAMPBELL DUNCAN (Tasmania) showed two exhibits of medico-legal interest. The first was a crochet needle in the hook of which had been found dried "Vaseline", epithelial and pus cells, as well as organisms suggestive of vaginal origin. The needle had been corroborating evidence to the dying depositions in a case in which a woman was charged with murder after an abortion.

Dr. Duncan's second exhibit was a bullet recovered from the spine of a man who was said to have shot himself accidentally with a 9·22 calibre rifle. It had been found that the marks on the bullet did not agree with the rifling of the rifle. Further questioning had brought to light a home-made pistol, made by cutting down an early model of a 0·22 calibre rifle. It had been found that the latter weapon could be discharged from the non-cocked position by a blow on the end of the bolt—a dangerous fault in some makes of rifle. The deceased had been carrying both guns when he met his death. The rifle had been discharged and handed to the police in order to screen the possession by the deceased of an unregistered pistol.

Section of Surgery.[1]

President: Professor N. G. Sutton, M.B., Ch.M., F.R.C.S., F.R.A.C.S., Queensland.

Vice-Presidents: V. M. Coppleson, M.B., Ch.M., F.R.C.S., F.R.A.C.S., New South Wales; G. H. Burnell, M.D., B.S., F.R.C.S.E., F.R.A.C.S., South Australia; L. E. Le Souef, O.B.E., E.D., M.D., B.S., F.R.C.S., F.R.A.C.S., Western Australia; C. Craig, C.M.G., M.D., M.S., F.R.A.C.S., Tasmania; W. E. A. Hughes-Jones, M.D., M.S., F.R.C.S., F.R.A.C.S., Victoria.

Honorary Secretary: S. F. Reid, O.B.E., M.B., M.S., F.R.C.S., F.R.A.C.S., Victoria.

President's Address.

NEVILLE G. SUTTON (Queensland) chose as the subject for his president's address "Gall-stones: No Cause for Complacency". He said that William Osler fifty years earlier, writing on the subject of gall-stones, had stated that few afflictions presented so many points for study—chemical, bacteriological, pathological and clinical. Those words were just as true today as when Osler had written them. The fact that at the Brisbane Hospital in the three years ended December, 1951, 660 operations on the gall-bladder and biliary tract had taken place, the majority of them occasioned by gall-stones, justified Professor Sutton's choice of subject. Although the death rate from gall-stones was not very high, it might be claimed that surgical efforts in its treatment were highly satisfactory. That was a complacent point of view to which Professor Sutton could not subscribe. In regard to ætiology, much confusion existed. Professor Sutton referred in turn to the earlier views of causation, such as bile stasis, infection or chemical trauma to the gall-bladder and disturbances of metabolism, particularly cholesterol metabolism. He mentioned the work of Gordon-Taylor and Whitby, who secured cultures of organisms from the interior of a large number of gall-stones, and he referred to the views of Robertson, of the Mayo Clinic, which implicated hormonal factors acting on both the autonomic and central nervous systems. The sex incidence had to be considered, and it had also been suggested through the previous decade that reflux of pancreatic secretion into the biliary system might be a factor in the formation of gall-stones. From the anatomical point of view, Professor Sutton referred to the work of Millbourn, a Swedish surgeon, who described three types of termination of the bile and pancreatic ducts. The first type was one in which the main pancreatic duct opened into the lower end of the common bile duct, the second type was one in which the two ducts opened contiguously in a common papilla, and the third type was one in which the main pancreatic and common bile ducts had separate openings to the duodenum. Professor Sutton described an investigation in which he had demonstrated in ten of twelve cases a communication between the common bile duct and the pancreatic duct. From a study of the embryology of the part it would appear that Millbourn type I should be regarded as the normal. Referring briefly to diagnosis, Professor Sutton said that there should be no difficulty in accepting gall-bladder disease as being due to reflex disturbances. He had found radiological reports on

[1] The meetings of the Section of Surgery with the Section of Anæsthesia and the Section of Medicine and the Section of Radiology and Radiotherapy have been recorded.

cholecystography very reliable. In regard to acute inflammation of the gall-bladder, the question of treatment was interesting. Professor Sutton was not in favour of early operation. He held that operation should be delayed till all acute symptoms had subsided, with the proviso that if an acute exacerbation occurred or if the acute manifestations showed no sign of diminishing, operation should be undertaken. If operation had to be performed in an acute case, a quick cholecystostomy might save the patient's life and lessen the incidence of operative damage to the main duct and other post-operative complications. In a section of his paper devoted to operative technique, Professor Sutton said that the indications for exploring the main duct were now fairly well standardized. In his last 100 cholecystectomies he had explored the duct in 39 cases and had found stones in no less than two-thirds of those; that was considerably higher than the figures usually given. Professor Sutton discussed the measures adopted to remove all stones when multiple stones were present in the duct. He described a method which he adopted for the draining of ducts which he had explored. When, after adoption of drainage, indications of blockage were present, a cholangiogram was prepared. This might confirm the presence of a missed stone. He had on several occasions attempted to clear the duct by means of ether, as advocated by Pribram. As he had a T-tube drain *in situ* and used ether in olive oil, any failure which he had had could not be regarded as a failure of Pribram's method. Finally Professor Sutton discussed biliary dyskinesia and obliterative cholangitis. He said that the exact relationship of those conditions to gall-stones was not certain. Before the pathology of such conditions was established on a firm basis treatment would not be satisfactory. Finally Professor Sutton said that he hoped he had succeeded in raising a number of contentious points; discussion was necessary, because "complacency was the enemy of progress".

SIR PHILIP MESSENT (South Australia) said that he had been glad to hear the discussion on the immediate operation for so-called acute cholecystitis, and agreed with Professor Sutton's remarks. He had seen other methods used, but with the passage of time was more in favour of conservative measures in the early stages. He admitted that on a few occasions he had had to perform an urgent cholecystostomy, and he did not think that the patient had suffered because of that. He referred to Harold Edwards's paper in which reference was made to the high incidence of damage to the common bile duct under such circumstances. He said that good exposure was essential and that this was not always possible with a long vertical incision. Such an incision only exposed more gut. He preferred a transverse incision and in cases of difficulty divided the rectus muscle. He emphasized that in cases of stone in the common duct there was no method of being certain that the duct was completely emptied of stones. He quoted a case in which a large stone was palpable in the common duct, but the stone disappeared into the hepatic ducts after palpation by students. Even though the stone was large it was not possible to find it or to bring it down at the time of the operation. Subsequent operation was necessary for its removal. Since that experience he had kept his fingers on the common duct above the stone whilst students were feeling it. He agreed with Professor Sutton that a choledochogram was of considerable value before a T-tube was removed. On a few occasions he had been able to crumble a stone with ether by the method described by Pribram. He agreed that there were theoretical objections to the T-tube, for it must make a larger hole when it was removed. He would not agree with the statement that a stricture of a common duct occurred only when the common duct was damaged. In his opinion stricture would result from pathological changes outside the duct. He considered that such strictures would be even more frequent if it were not for the fact that the duct was protected on one side by the portal vein and that that portion of the duct was not usually exposed at operation.

B. T. EDYE (New South Wales) said that the type of incision used should be that most suitable to the patient concerned. If the common duct was being explored, it was near the mid-line, and an incision should be used which allowed instruments to pass easily into the duct. Towards the end of the operation he dissected from the fundus downwards, as then the right hepatic artery and the various ducts could be found more easily. If the common duct was opened, this was repaired by suture. He agreed that a stone might be missed, but said that that was less likely if a dilator was used which filled the duct. If the stone was displaced upwards there was no certain way of dealing with it. Dr. Edye said that dilators should be gently used in the common duct, otherwise there was the risk of tearing the duct and causing retroperitoneal cellulitis. He was not in favour of using a T-tube in the duct. If a stone was missed he had no faith in substances which might dissolve the stone. In his opinion there was the possibility of damage to the pancreas with such preparations.

C. W. GALE (Geelong, Victoria) recommended an oblique incision at 25° with the waist-line. With this incision the results were similar to those of the transverse incision, excepting that the gall-bladder and ducts were in the centre of the incision and still lay in the line of the incision when traction was applied. That incision was in line with the intercostal spaces, and by its extension it might be converted into a thoraco-abdominal incision. Normally the incision was taken only to the costal margin. The slight disadvantages of the incision were that the assistant was looking over the edge of the wound and that occasionally the patients complained of pain in the region of the costal margin for some time afterwards; but even that then passed away. If the surgeon was right-handed he might find it more natural to probe the duct when standing on the left side of the patient.

GEORGE BELL (New South Wales) said that in his opinion more patients with acute cholecystitis would live if they were left alone in the initial stages. However, if perforation was suspected operation was urgently required. Under those circumstances he would often only perform cholecystostomy. He agreed that gentleness was necessary when sounds were used in the common duct, and that all strictures of the common duct were not due to injury. In his opinion stricture of the common duct might sometimes be caused by a T-tube.

T. ACKLAND (Victoria) regarded the mental attitude of the surgeon to the treatment of acute cholecystitis as most important. If the surgeon was stubborn and believed that he must remove the gall-bladder under all circumstances in acute cholecystitis the patient and the surgeon would be in trouble. However, in some cases of acute cholecystitis the gall-bladder shelled out easily and the region of the ducts was easily displayed. Cholecystectomy might then be indicated.

L. DOYLE (Victoria) was usually in favour of transverse incisions, but with a right rectus incision he found it easier to lift the liver up during operations on the gall-bladder and ducts. If he used a Kocher's incision he made it about one and a half inches below the right costal margin and finished it at the outer edge of the rectus muscle. In his opinion it was possible to avoid all nerves during incision. He agreed with instrumentation of the common duct from the left side of the operating table, and also used this position in cases of other difficulties during operations on the gall-bladder and ducts. Dr. Doyle was in favour of using diathermy with a light coagulating current to produce hæmostasis in the bed of the gall-bladder. He also found diathermy useful in operations for acute cholecystitis. If he was certain that there was no bleeding, and if he was able to cover the stump of the cystic duct with peritoneum, he closed the abdomen without drainage. In order to prepare the way for those coming after, and especially to decrease the possibility of duodenal fistula at subsequent operations, he stitched omentum over the cystic duct region. Dr. Doyle asked what percentage of stones were found in the common duct at exploration when it was not already known that there were stones in the duct. He was not in favour of a "rule of thumb" for cases of acute cholecystitis, and considered that those patients should be treated individually. He pointed out that during

operation on an acutely inflamed gall-bladder, especially if it was gangrenous, it might be possible to shell out the mucosa with a finger.

G. H. BURNELL (South Australia), from the chair, referred to a method for finding small stones in the renal calyces in cases of difficulty. Fibrinogen was injected and then made to clot. The clot and enclosed stones were then removed. He asked whether such a method was applicable to stones in the common duct.

Professor Sutton, in reply, said that he had no exact figures as to the number of stones found in the common duct when these were not expected pre-operatively. In his series 66% of ducts explored had been found to contain stones. That was a high figure; but the patients admitted to his professorial beds were rather a selected group. He was not acquainted with the method of using fibrinogen, but would agree that the general surgeons often followed in the steps of the urologist; for example, pre-operative cholangiography was perhaps similar to X-ray examination of the exposed kidney at the time of operation to detect fragments of stones which had been overlooked. Professor Sutton said that if the case was an ideal one he did not drain the peritoneal cavity at the end of a cholecystectomy. In such a case anterior and posterior peritoneal flaps were made and the cystic duct was exposed. This was found entering the common duct on its postero-lateral aspect. Sometimes this junction was quite low down. Professor Sutton pointed out the importance of "reperitonealization" of all the bare area at the end of the operation. At operation he made a longitudinal incision into the common duct and had had no post-operative trouble after inserting a T-tube into the common duct. Professor Sutton referred to the operation of choledochoduodenostomy, but was uncertain as to its place.

Death due to Head Injury.

R. S. HOOPER (Victoria) read a paper entitled "Death due to Head Injury: Its Cause and Prevention". He remarked that it had been said that no specific treatment was given to patients with head injuries; 30% of them would die. A proportion of the 30% would inevitably die; but in the remainder of cases death was avoidable, and the higher the standard of treatment applied, the lower would be the proportion of avoidable deaths. Dr. Hooper outlined briefly the causes of inevitable and avoidable deaths. Of the latter the following were the most important: (*a*) localized intracranial hæmorrhage, (*b*) respiratory complications, (*c*) exhaustion and dehydration, (*d*) meningitis, (*e*) cerebral œdema. Progress in the prevention of death would be obtained by a more complete knowledge of the pathological changes taking place and by improved medical and surgical treatment. In the assessment of the pathological state much might be deduced from accurate information of the nature of the impact and of the patient's clinical condition soon afterwards. Later developments could be assessed only if careful observation continued, especially with regard to respiratory function, circulation, state of consciousness, temperature and neurological signs. The more complete the information, the easier it was to fit the clinical features into an understandable pattern from which the diagnosis of serious intracranial complications could be made before surgical intervention was too late. Extradural hæmorrhages were seen to produce three typical "patterns" according to their situations, while even the difficult subdural hæmorrhages and effusions exhibited some features which might be assembled into an understandable pattern. Respiratory complications were responsible for much of the present mortality, and the deaths could be reduced only by adequate prevention and early detection of symptoms. The mortality of meningitis and cerebral œdema had been much reduced, but deaths still occurred and the mortality associated with those conditions was unnecessarily high. The essential factor in the management of head injuries was time—time for the brain to recover. During this period the brain should be fully supplied with oxygen; for that purpose an adequate blood pressure and unobstructed respirations were essential. Shock should be corrected and an adequate airway maintained. If that could not be obtained by placing the patient in suitable positions, a tracheotomy should be carried out. In many instances this had been found to be a life-saving procedure. Exhaustion and hyperthermia were conditions which should not develop except in very old and very young patients. The operative treatment of intracranial lesions requiring intervention was not dealt with in detail by Dr. Hooper, but certain technical aspects were discussed by him.

LAMBERT ROGERS (United Kingdom), in opening the discussion, said that Dr. Hooper's paper was an important contribution, because the patterns taken by different types of head injury were gradually being recognized. Between 8000 and 9000 people were killed every year on British roads, and a large number of the deaths were from head injury. Of 321 fatal industrial accidents in Birmingham in the period from 1940 to 1949, 118—well over one-third—were due to head injuries.

Professor Rogers said that he considered it very important that the patient with a head injury should be examined at the earliest possible moment because, as Dr. Hooper had pointed out, they were often handicapped in dealing with the patient by not knowing what actually happened at the time of the accident or what the immediate clinical picture was. It was important to know the local neurological pattern, as it were, which had been produced by the accident, because they were then in a position to recognize epiphenomena (to use the apt term of Sir Geoffrey Jefferson) if and when they arose. Professor Rogers said that in order to get that early information he believed that "interns" should be sent with the ambulance drivers who went to the scene of the accident. That was a practice in America, which might well be followed in Britain and Australasia, and he strongly advocated it; the ambulance should have an "intern" on board who, on arrival at the scene of the accident, could record the details, note the neurological pattern and render any immediate assistance which might be required.

Referring to cases of closed head injury, Professor Rogers said that he still advocated the practice of depletion therapy, which should be begun as early as possible, and consisted of the rectal instillation of magnesium sulphate, fluid intake limitation, and keeping the patient propped up and with a clear airway. A watch was kept on the blood urea concentration, to ensure that the depletion introduced to counteract "brain sweating" did not become chronic dehydration.

Professor Rogers said that one rare cause of death in head injury, of which he had been able to collect a few examples, and which it did not appear possible to avoid from what was known at present, was perforation of the stomach or œsophagus some days or even weeks after the injury. A girl, aged fifteen years, with a compound brain injury appeared to be recovering well when she died suddenly, nine days after the accident, from a large rent in the œsophagus. Professor Rogers had noticed that a case of death from gastric hæmorrhage from ulceration six weeks after a head injury was recorded in the museum demonstration at the Congress. The card accompanying the exhibit stated that the patient was a pedestrian who was struck by a motor-car and who had moderate cerebral contusion. Autopsy revealed multiple subacute gastric ulcers causing hæmorrhage. How could such complications as those be avoided? The patient with a head injury should be under continuous close observation. The time factor, as Dr. Hooper had remarked, was most important, and the surgeon might lose the opportunity of dealing effectively with an acute intracerebral hæmorrhage because he was called in too late. Examples of this could be readily quoted. Intracerebral hæmorrhage was another cause of death in some head injuries. Fatal hæmorrhage had occurred in the mid-brain of a boxer, aged nineteen years. Another fatal hæmorrhage had occurred in the medulla of a girl who was knocked off her bicycle one morning on the way to work and developed the clinical syndrome of the "posterior fossa compression syndrome"—in other words, she ceased to breathe, but had a good pulse; but in her case opening of the posterior fossa while oxygen was passed through a catheter into the trachea

failed to relieve her, because the respiratory centre had been destroyed by an intramedullary hæmorrhage and not compressed by clot from without.[1] Clot compression could be relieved in such cases.

Professor Rogers emphasized the desirability of obtaining from the beginning first-hand information about the patient with a head injury by a doctor brought to the patient on the ambulance which went to collect him, and the necessity of keeping the patient under close observation in order to watch for those signs and symptoms (epiphenomena) which showed that intracranial blood clot was accumulating. He also believed that early institution of depletion therapy in closed or blunt head injuries by the use of rectal magnesium sulphate instillations would not only alleviate or prevent some immediate complications, such as traumatic delirium or cerebral irritation, but would save some of those patients and prevent late complications by checking brain swelling and consequent cerebral anæmia. He was so convinced of the value of the rectal administration of magnesium sulphate from the beginning in the case of the unconscious patient with a closed head injury that he carried in his pocket instructions for such treatment should he be found unconscious as the result of such an injury.

Neville Sutton (Queensland) congratulated Dr. Hooper on the visual aids used in his lecture, as they were excellent. He went on to say that a successful attempt to clarify the syndromes of head injuries was most important. Previous attempts had not been helpful in treatment except with one or two specific lesions. Dr. Hooper had laid stress on three regional lesions; that must be of great use in the treatment of the patients concerned. For exploration to be successful it must be in the right region of the skull. Apart from compound fractures, including the anterior fossa syndrome, the main indication for interference in head injuries was hæmorrhage; and to be able to deal with that successfully the site must be determined. Professor Sutton said that early assessment as soon as possible after the injury was most important; from that assessment subsequent changes might be recognized. Another point was that localization was essential; it was not possible to put burr holes in everywhere. If there was a fractured skull, that of course was used as a guide to the site of the hæmorrhage. Posterior fossa syndromes were often overlooked.

H. C. Trumble (Victoria) pointed out how important in determining treatment were the history of the injury, the state of the patient immediately afterwards, and the subsequent progress. The patient, he considered. was on the surface of a sea of unconsciousness. After an injury he was immediately submerged in that sea. When he was examined by the doctor later, if there was not a good history and description, it was not known if he had come up in the sea or had gone down further. Therefore, Dr. Trumble said, everything should be recorded both by the nursing staff and by the resident staff. If the patient continued to come towards the surface all was well, but if there was a later turn downwards the question of time was most important in determining treatment and in the prognosis. In hospital time might be wasted waiting for porters *et cetera* to bring the patient to the theatre, and therefore he would advise that the medical officer take over that duty with such patients. The operating theatres should be used to getting ready in a hurry. The general surgeons who treated head injuries should be allowed to watch neurosurgical units dealing with such patients, to see how hæmorrhage *et cetera* might be dealt with more easily.

L. Doyle (Victoria) emphasized the point that often when a patient died as a consequence of head injury the death was reported to the coroner, but no post-mortem examination was carried out. For those who were not neurologists and neurosurgeons that was the end of an anxious period. They were no wiser and had no light thrown on what method of treatment should have been adopted in that case. Dr. Doyle said that he had brought the point up before the Medico-legal Society, but that no definite action had been taken. He strongly felt that the patient's doctor who had been responsible for treatment should have a chance to see all such post-mortem examinations. He also considered that they should be done at a hospital where the students also would see the pathological changes.

J. Kennedy (Victoria) said that he saw many patients at the time of injury who had then been sent home to their own doctor. Those patients might or might not see him again later. The local doctor they were sent to might be busy and might not examine them for some time, by which time precious hours had been lost. The patients might then be sent back to hospital, where they should have gone earlier. He quoted the case of an acute extradural hæmorrhage following a football injury; the patient had gone home and then to bed. Dr. Kennedy said that nowadays many young practitioners could not recognize extradural hæmorrhage which was going wrong. The students should have a chance of seeing more such patients. He then quoted a second case, in which a man had been hit on the head with a piece of machinery. He worked for three days, but then complained of headache and stiff neck. He was given two weeks off work, but on return he again complained of headache and giddiness, and eventually after one month he was sent to the neurosurgeon for treatment of his subdural hæmatoma. Dr. Kennedy pointed out also that all subacute extradural hæmorrhages were not fatal within the first day or two. He had met with one such patient who died after some months.

D. Stephens (Victoria) asked what was the routine treatment of a patient with a bruise and a cut in the forehead with a linear fracture beneath. He said he had been taught that burr holes, one or two on either side of the fracture line, should be made.

Sir Philip Messent (South Australia) quoted one or two cases in which years before he had operated on patients for subdural hæmorrhage. Clots had been found *post mortem* in the posterior fossa in those patients, and he wished to ask how that could have arisen. Sir Philip referred to depressed fractures in children and said that he would agree with Professor Lambert Rogers that those did not usually come out and that operation was necessary. However, he had recently seen a child who had fallen off a ladder and suffered a depressed fracture of the skull, and on the child's arrival at hospital the fracture had reduced itself.

L. E. Le Souef (Western Australia) said that he hoped that those in the audience, when they returned to their own hospitals, would speed up the administrative arrangements for dealing with patients with head injuries.

Professor Lambert Rogers, in reply, said that he had had some trouble in his city in getting autopsies on patients with head injuries. However, the autopsies were all carried out in the post-mortem department of the Royal Infirmary, and he would agree that it was most important to see what had happened and why the patient had not responded. Professor Lambert Rogers said that it was most important to have the patient under expert observation at the time of the accident, and it would be very wise to have a doctor in the ambulance to see the patient in the street or factory.

Dr. Hooper, in reply, said that he had been trying for at least four years to do something about the ambulance services. For instance, he had been trying to get the drivers to put the circumstances of the accident on paper when they first picked up the patient, but they had refused. The hospital casualty clerk now obtained as much information as possible from the ambulance drivers when they arrived at the hospital. He would also agree that a medical officer on the ambulance would be very valuable, if only in a watching capacity. Dr. Hooper pointed out that it was possible to go eight miles through the city by car in less time than it took for the patients sometimes to be brought from the ward to the operating theatre on a trolly. The neurosurgical units would certainly be very pleased to teach what they could to the general surgeons. The teaching of students was also essential, but Dr. Hooper pointed out that any specialty which budded off from

[1] Professor Rogers showed lantern slides to illustrate his cases.

general surgery tended to be lopped off or divorced from the general teaching of students. Dr. Hooper, in reply to Dr. Stephens, said that he did not consider that there was an indication on surface evidence for intracranial exploration. Intracranial exploration must depend on many factors, and those were all assessed together. Dr. Hooper also said that posterior fossa hæmatomata were difficult to pick, but more recently they had been recognized more often. He quoted the fact that 19 cases only of posterior fossa hæmatomata had been described in the literature until six months before, but since then (in the last six months) a further eight cases had been described. Dr. Hooper said that irritability was usually attributed to cerebral œdema. If dehydration treatment was used, it must be carefully controlled by routine daily blood urea estimations. In general, sedation might be harmful for people with head injuries. He quoted a patient, aged sixteen years, who had fallen off a bicycle, been taken to a private hospital, and been put in a room over the matron's flat. The patient was rowdy and showed all the phenomena of cerebral irritation. With each dose of sedative his respiration became more depressed, and he did not drink. As he rose to the surface of his stupor each time he became more irritable and was given more sedative; so he had irritability alternating with depression. After a week of such treatment his blood pressure was falling and he was emaciated and dehydrated. He was then given sufficient fluid and sat out of bed, kept warm and given warm sponges, and then for the first time he slept properly. The treatment was repeated when he awoke, and after thirty-six hours he was able to walk about without further sedation. Dr. Hooper referred to the difficulty of treating a patient with fractured femur and head injury. He said that such patients were often best treated with the leg in plaster.

Acute Retention of Urine.

N. J. Bonnin (South Australia) said that most of the mortality and morbidity that occurred after urological surgery was due to infection. In particular the kidney failure feared as a complication was in most cases due to pyelonephritis. The urinary tract was peculiarly liable to infection and to potentially lethal infection with organisms resistant to all the antibiotics, so that the urinary antiseptics which were available provided but a precarious control of infection. Infection was in most cases introduced by the catheter passed before surgical operation, and the infection was not usually introduced in the operating theatre. Thus the first principle in the management of any case of acute retention of urine was the preservation of asepsis. In the treatment of a case of acute retention of urine the time-honoured dose of morphine and hot bath should always be tried first and instrumentation resorted to only if those failed. Emergency surgery in cases of acute retention of urine appeared to Dr. Bonnin to carry risks which outweighed the advantages. With great care and attention to details asepsis could be preserved for a few days by catheter drainage. In acute retention of urine due to prostatism, Dr. Bonnin suggested that a small catheter should be passed aseptically and tied in securely, and that a urinary antiseptic such as sulphacetamide should be prescribed. The patient should then be transferred to hospital, where operation could be undertaken with no more delay than that required for a careful assessment of his general condition and of his general disease. In cases of urethral stricture, if a small Tyman catheter could not be passed, no further attempt at passage of an instrument should be made with a patient in his bed. The patient should be at once removed to an operating theatre; more than necessary gentleness and asepsis could be secured only with gentle hands and aseptic theatre techniques. Over-distension of the bladder led to atony, and it might take many weeks for recovery from atony to occur. Over-distension was especially likely to occur in patients who had received large doses of sedatives after operations. Such patients should be given appropriate treatment, and if necessary, catheterization, as soon as the discomfort of a full bladder was noted.

J. S. Peters (Victoria) said that he had little to add on technique. He preferred 16 to 18 F. Foley bag catheters, as they were almost atraumatic and were comfortable. A catheter pressing against the bladder wall caused pain and increased the shock and irritability of the patient. It was not necessary to tie the Foley catheter in, and therefore there were no meatal incrustrations and soreness as with an ordinary rubber catheter. Asepsis was necessary, but must be practical and consistent with the relief of tension. At the same time subsequent treatment must be considered. The catheter must remain to drain and so to improve renal function. Chemotherapy was not always able to control infection and suprapubic drainage might then be required. When retention of urine did occur, they must think of the further management. For certain patients—for example, children and women—special tests were necessary; cystourethrography should be avoided for children. In women associated pelvic lesions, such as fibroid tumours, might be a problem, and even carcinoma of the sigmoid colon might cause retention of urine. The management came down at first to the correct diagnosis. The history often helped. However, it was difficult to distinguish between some of the causes. Rectal examination did not always give a good estimate of the size of the prostate. Knowledge of its size determined the future management and the choice of the operation. The patient with a small prostate and retention of urine might appear to have a larger gland than really existed. The diagnosis of the cause of the retention of urine must be made in the initial stages. It was not necessary to wait until massive investigations had been carried out, but if immediate surgery was necessary the posterior part of the urethra should be examined. In all cases of acute retention of urine they must determine the constitutional make-up of the patient, for they were dealing with a weight and age group which might have to be made fit for surgery. It was, of course, best to combine clinical examination with pathological tests. A high blood urea level was often found in those cases, but it might not be necessary to bring it down to normal so long as the level was stabilized before operation. However, prolonged drainage might be required before this was attained. The aim of operative treatment of acute retention of urine was by accurate diagnosis to determine which was the best method by which the patient might be restored to a normal state, especially for the normal passage of urine.

G. H. Burnell (South Australia) said that in 1935 he had read a paper on prostatectomy at the 103rd Annual Meeting of the British Medical Association in Melbourne, and that Clifford Morson had agreed with his statement that he had doubts about the blood urea estimations in determining the fitness of patients for prostatectomy. Since then he had not carried out a blood urea test as an estimate for fitness of operation. The tests might be valuable on the medical side, but if the blood urea and urea concentration tests gave poor results there were other signs of the poor general state of the patient. In his last 300 prostatectomies there had been nine deaths due to pulmonary embolism, coronary occlusion *et cetera*, but there had been no deaths from uræmia. If one looked after the infection, renal function would almost certainly look after itself. Dr. Burnell said that he made a cystoscopic examination if he was not satisfied with the look of his patient. He then waited for two weeks to allow any introduced infection to subside. In other cases a cystoscopic examination was made before operation with the patient on the operating table, and he made a point of avoiding passage of a cystoscope a few days before operation. If a catheter was passed, it should be left in until proper investigation was made. Dr. Burnell also said that if one of the sulphonamides in a dose of 0·5 gramme four times a day would not control the infection, then three grammes would not; good nursing staff was essential if satisfactory results were to be obtained. He quoted a probationer nurse who had contaminated his own tube and then replaced it in the drainage bottle. Dr. Burnell now preferred drainage straight into a "Pyrex" dish between the legs, the catheter and penis being both covered with sterile dressings. The ascent of infection up the tube was

especially likely to occur if blood was present in the urine; the shorter the tube, the better.

K. B. Burnside (Victoria) agreed with the speakers, but he asked when was the best time to perform a prostatectomy. He himself divided patients into three groups—firstly, those with extraurinary complications, such as cardiac failure or bronchopneumonia, and those amounted to 15% or 20% of patients with acute retention of urine. Some were moribund when first examined, but others might be improved by digitalis, penicillin *et cetera*. Dr. Burnside said that he would call on a physician to help with the management of those patients and would then defer operation until the patient's condition improved. There was little alternative to catheter drainage during this period, and risks had to be taken if the extraurinary complications were severe. His second group were those with urinary complications, 10% to 15% of such patients. He said that the complications might be relieved by drainage, and there were then fewer risks with a deferred operation; both uræmia and gross infection were then less likely. Even if gross infection was present, that would decrease also with drainage. His third group were those without urinary or extraurinary complications and comprised about two-thirds of all patients. Their condition would not be improved by drainage, and they were the ones who should be relieved by immediate operation. Drainage in such cases would only encourage infection without doing any good. In some of the cases thorough endoscopic examination on the table was indicated, to judge whether immediate operation was necessary; diverticula, carcinomata *et cetera* could then be recognized. Dr. Burnside therefore recommended immediate operation for two-thirds of patients with acute retention of urine.

M. Kaye (Victoria) said that Dr. Bonnin had covered the salient point admitted by all—the question of infection. In any other obstructive lesion in the urinary tract infection was not treated without treatment of the obstructive factor. If pyelitis was present and was not responding, the stricture or the calculus must be relieved. Wilson Hay had shown the value of relieving the obstruction by prostatectomy as an urgent operative procedure. Wells, of Liverpool, carried out intravenous pyelography on the admission to hospital of patients with acute retention of urine, and showed that a small percentage had evidence of back pressure; prostatectomy was then performed and another film of the renal tract was taken. In many of those cases hydroureter and hydronephrosis had decreased. Dr. Kaye described Wells's experiments, in which a plug of gauze was put into the prostatic cavity and further intravenous pyelograms were taken. Those resulted in hydroureter and hydronephrosis, and on the basis of that clinical research it had been decided that in those cases there was pressure on the lower ends of the ureters; therefore Wells recommended immediate prostatectomy. Ferguson, of London, reported a series of cases of prostatectomy treated by immediate operation; the average age of the patients was sixty-eight years, and there was a 3% mortality rate. Those were compared with a similar series of patients with an average age of sixty-nine years who were treated by delayed operation after catheter drainage; in those cases there was a 13% mortality rate, in spite of modern chemotherapy, resuscitation, transfusion *et cetera*. Dr. Kaye did not agree that only 66% of patients were suitable for immediate operation; in his opinion the figure was really higher—about 80%. He quoted his own figure of 42 prostatectomies with only one death; the patient who died was a man aged fifty-eight years, who was rather senile—he was an "old-young" man who kept pulling his catheter out and got an ascending infection and so-called surgical kidneys. Dr. Kaye said that his cases were not selected, and retropubic prostatectomy was carried out. In no case was it performed for carcinoma. According to Dr. Kaye the clinical condition of the patient could be assessed in hours. He agreed, however, that the blood pressure was often raised, since the patients were old men.

L. E. Le Souef (Western Australia) agreed that emphasis must be placed on the prevention of infection and trauma. He suggested the use of Cuthbert Dukes's method for wrapping the catheter and glans in sterile glycerin after a catheter had been inserted; that kept the parts moist and reduced infection, which then came from the anterior part of the urethra. Referring to strictures of the urethra, he said that the approach to it was a waning art among resident medical officers, who knew little of passing sounds and catheters. Trauma came with the first attempt; it was the first person who made it difficult for the second. Dr. Le Souef advised starting with a large sound; if this did not pass, forceps should not be used, but a smaller sound—in other words, the urethral sense should be developed from the fingers; but this had been taken from the hands of surgeons by chemotherapy.

S. C. Fitzpatrick (Hamilton, Victoria) said that preventive measures against acute retention of urine in prostatism should be more emphasized. He tried to convince the patient at the stage of minimum retention of urine that operation would eventually be required. However, it was necessary first to convince the medical officer that the patient would eventually need an operation on the prostate; then they must decide at which stage he would have to convince the patient. Generally the patient was convinced only when acute retention of urine ensued. The medical officer should have clear standards which were well defined. Perhaps arbitrary measurement of the amount of urine retained might be adopted; but that had usually been given up. The use of intravenous pylography was better, and still better was the distance over which the patient could project his urinary stream. Dr. Fitzpatrick said that he now saw fewer patients with acute retention of urine since he had adopted that view. The patient was then taken through the crisis of prostatectomy in much better condition. With regard to post-operative retention of urine, Dr. Fitzpatrick said that it could not occur until the patient was again secreting urine. That was often forgotten. If there was suppression of urine, it might take forty-eight hours or longer before acute retention could develop.

T. Ackland (Victoria) said that he had been using a lumbar puncture needle many years earlier when operating on a man with an enormous bladder, and found the peritoneum stuck down to the pubis. Since then he had looked through the records at the Royal Melbourne Hospital and found that seven deaths had resulted from such use of a lumbar puncture needle or cannula. He said that it was little extra trouble to look for the peritoneum and then push it up prior to inserting the suprapubic needle into the bladder.

L. Doyle (Victoria) said that he had made the point at a meeting of the Royal Australasian College of Surgeons in Sydney many years earlier, that one of the most important events in the days of an old man was the day when he had his first catheter passed. Many such patients walked into the casualty department, and if no bed was available the catheter was passed. That process was repeated, and the day came when no one could pass a catheter. In Dr. Doyle's opinion the operation of first catheterization carried just as high a mortality rate as did acute appendicitis; the difference, however, was that death might not occur for some time after operation. The public hospitals should therefore pay more attention to the operation of first catheterization.

Dr. Peters, in reply, said that Dr. Burnell seemed to have extroverted and introverted views; but he (Dr. Peters) considered that in 1952 it was better to combine science with clinical signs. He advocated endoscopic investigations at the time of operation, and said that careful assessment was necessary if patients were to be submitted to immediate prostatectomy.

Dr. Bonnin, in reply, said that he had worked in the same hospitals as Dr. Burnell and found that Dr. Burnell had trained the staff very well in the handling of drainage tubes and bottles. Dr. Bonnin also said that previously surgeons had been very occupied with the effects of back pressure, and they now recognized that infection was more important. However, back pressure still did occur, and had a place in the treatment of these patients. Dr. Bonnin was not convinced by the experiments of Wells in packing

the urethra, but he would agree with the need for relieving the obstruction as soon as possible. The condition was somewhat akin to intestinal obstruction, in which the obstruction was relieved as far as possible by aspiration with a duodenal tube, the electrolyte imbalance was corrected, and then operation was performed. He was not in favour of prolonged catheter drainage and recommended prostatectomy as soon as possible. Dr. Bonnin agreed with Dr. Fitzpatrick's remarks. In reply to Dr. Ackland's question, he said that the peritoneum might be stuck down to the pubis, but even if one transgressed the peritoneal cavity with a needle a tense bladder would probably push the viscera up out of the way and so the risk was very small. However, he would perform a suprapubic puncture only if there was no way out, and he could imagine such conditions in the country in an isolated general practice.

Section of Radiology and Radiotherapy.[1]

President: H. R. Sear, M.B., D.R., F.R.A.C.P., F.F.R., New South Wales.

Vice-Presidents: John Mayo, M.D., B.S., F.R.C.S.E., F.R.A.C.S., F.C.R. (Aust. and N.Z.), South Australia; C. W. Uhr, M.B., Ch.M., F.C.R. (Aust. and N.Z.), Queensland; R. Kaye Scott, M.D., M.S., F.R.A.C.S., F.F.R., D.T.R.E., Victoria; A. A. Merritt, M.B., B.S., Western Australia; K. J. Friend, M.B., B.S., D.R., Tasmania.

Honorary Secretary: P. H. Davis, M.B., B.S., D.D.R., Victoria.

Presidential Address: Congenital Bone Dystrophies.

H. R. SEAR (New South Wales) took as the subject of his president's address congenital bone dystrophies. He said that the subject matter of his address had been taken from the Skinner Lecture delivered in London in May, 1952, before the Faculty of Radiologists. The lecture had been concerned with the associations and interrelations of the congenital bone dystrophies. Many of the dystrophies were rare. Dr. Sear briefly discussed certain typical features of them, considered them from the point of view of membranous and cartilaginous lesions, and also in relation to faults in endochondral and periosteal ossification. He said that from the literature it seemed to be the aim of various authors to separate those dystrophies into more and more compartments. The aims of his paper were to point out the following points: (i) that such compartments, useful as they might be for teaching purposes, were not water-tight; (ii) that cases were encountered in which features of more than one dystrophy were shown; (iii) that the associations of rare dystrophies occurred too frequently to be explained as a series of coincidences; (iv) that the associations of the features of one dystrophy with those of another dystrophy suggested that the fault in osteogenesis that produced one dystrophy was closely associated with the fault in osteogenesis which produced another dystrophy; (v) that the associations of faults in osteogenesis might be the explanation of certain variants from the classical picture of a dystrophy—for example, the malacic form of achondroplasia, which had long been a stumbling block for both pathologist and radiologist.

To illustrate those points Dr. Sear showed skiagrams from numerous cases demonstrating such associations.

Treatment of Carcinoma of the Uterine Cervix.

JOHN MAYO (South Australia) read a paper on the treatment of carcinoma of the uterine cervix. He said that though radiation treatment of cancer of the uterine cervix was the main subject of his paper, he would give a brief survey of surgical treatment of the disease from the work of Ries and Clark towards the end of the last century to that of Meigs and Brunschwig in recent years. He then reviewed methods of irradiation from the earliest days up to the present, and gave some attention to well-established techniques such as those of Stockholm, Paris and Manchester. He discussed in somewhat greater detail the dosage used at Manchester and enumerated certain weaknesses and difficulties in the various techniques, together with the methods adopted in Adelaide to try to overcome those troubles. Among those was Swanberg's modification of the Paris technique. The great contributions of the Manchester school were indicated. Dr. Mayo showed a number of isodose curves plotted from the treatment of actual patients; the curves were superimposed upon skiagrams taken with the radium in position. Some curves were satisfactory, others were not. Further isodose curves showed variation in dosage that would follow certain postulated displacements of the radium. Dr. Mayo discussed vaginal moulds and X-ray therapy, both intravaginal and external, and demonstrated appropriate isodose curves. Among other matters to which he directed attention were the vaginal smear technique and related subjects, differential serial cell counts, early diagnostic centres and the use of newer electronic aids, such as Turner's probe. He made reference to the use of radioactive cobalt and also to the possibility of the establishment of an atomic pile in South Australia. The isodose curves used to illustrate matters dealt with in the paper were all produced with the aid of an optical integrator. Dr. Mayo described this machine briefly and outlined the advantages accruing to a radiotherapy department which used such apparatus.

The underlying thesis of Dr. Mayo's paper was the necessity for planned individual treatment of each patient and the fact that poor results were to be expected from the use of rule-of-thumb methods. The value of the services of skilled physicists and of a well-equipped physical laboratory was stressed. Dr. Mayo gave some figures of results of radiotherapy treatment in Adelaide.

GRAHAM GODFREY (Victoria), in discussing Dr. Mayo's paper, said that surgical operability rates referred only to radical operations. In fact many palliative operations were performed on patients with "inoperable" lesions. Information gathered at the Cancer Registry showed that there was also an "operability rate" for radiotherapeutic methods, and that when such cases were classified as "radical intent", "palliative intent" and "no treatment", it was apparent that the scope of radiotherapy was not very different from that of surgery. In regard to the staging of carcinoma of the cervix, Dr. Godfrey said that the study of operative material showed that clinical findings were unreliable. Most "infiltrations" were actually inflammatory, node metastases could rarely be detected clinically, and at times the unqualified pre-operative diagnosis of carcinoma made from a biopsy specimen had to be modified to the stage 0 of the Americans when the whole specimen was available. That amendment clearly could not be made in non-surgical cases. Experience suggested strongly that the only real criterion of results was the total number of survivals from all patients presenting themselves, without regard to staging. Dr. Godfrey finally said

[1] The meetings of the Section of Radiology and Radiotherapy with the Section of Dermatology, the Section of Medicine and the Section of Surgery, the Section of Orthopædics and Physical Medicine, and the Section of Obstetrics and Gynæcology have been recorded.

that in order to give the utmost help to each patient (and that included palliation as well as attempted cure), it was essential for radiotherapists and surgeons to work in close cooperation.

Non-Specific Bronchiectasis.

J. N. Burgess (Victoria) discussed the anatomy and physiology of the lungs, and described the lobes in each lung and their corresponding bronchi. He mentioned various layers in the bronchial walls, and outlined the functions of the bronchial tree. Dr. Burgess then referred to the microscopic and macroscopic pathology, and stressed the importance of infection and atelectasis in the ætiology, and also any history of preexisting lung infection. He mentioned the clinical manifestations, especially the cough, sputum and hæmoptysis, and emphasized the presence of clinical signs in the lungs. He discussed the appearances on the plain X-ray film, and pointed out the importance of the bronchogram for the final diagnosis. Dr. Burgess then mentioned medical treatment and described lobectomy. The unfavourable prognosis apart from surgery was shown, and the good results from operation were mentioned. Dr. Burgess said that 160 cases had been analysed; 70% of the patients came for treatment between the ages of six and twenty-five years, and nearly all gave long histories; 33% traced the start to a pulmonary infection, usually pneumonia. Cough with variable amounts of sputum was present in every case, and hæmoptysis in 21%. The appearance on the plain film ranged from normal lungs to lobar involvement and collapse. In half the cases patchy consolidation was present and in one-fifth collapse of a lower lobe. In 71% the lower lobe of the left lung was affected. Twenty-eight lobectomies had been performed and 16 cases were described fully and discussed, the results of unilateral and bilateral lobectomy being shown. There were two patients with post-operative complications, and one post-operative death had occurred. There was one patient with an operable lesion who had refused lobectomy, and one patient had an inoperable lesion.

Gwynne Villiers (Victoria), in discussing Dr. Burgess's paper, said that he had several points to mention. The first was the relationship of sinus infection to the common segmental type of acquired bronchiectasis. He had found that those two conditions were almost universally complementary to one another. He agreed with Dr. Burgess that in all cases the sinuses should be investigated before bronchography was undertaken. The question of the order in which the conditions of bronchiectasis and sinus infection were dealt with was controversial. The second point concerned congenital bronchiectasis. Dr. Villiers said that in his experience it was a fairly rare condition. It appeared to be particularly amenable to surgical treatment when diagnosed. The third point had to do with the usual segmental type of bronchiectasis. Dr. Villiers said that, contrary apparently to Dr. Burgess's experience, in his experience it was a self-limited disease, and only in rare and unusual cases did it extend from lobe to lobe. Usually apparently lobes or segments were primarily affected by the initial pertussis *et cetera*, and bronchograms over a period showed no change or no extension of the involved areas. That, at the present time, would appear to be the only indication for carrying out bronchographic examinations of children with bronchiectasis under the age of eight years—to establish that the condition was not progressing—as he understood that surgical treatment prior to that age was unsatisfactory. He had had one case of post-operative spread, presumably due to post-operative atelectasis in the retained dorsal segment of the lower lobe of the left lung and the subsequent development of bronchiectasis.

Dr. Villiers then mentioned two new water-soluble iodine compounds for bronchography which had been put on the market recently—"Umbriodil" and "Dionysil". He said that their advantage was held to be very rapid absorption from the lung fields; thus was avoided confusion at subsequent examinations due to retained lipiodol, particularly in cases of tuberculosis with bronchiectasis. However, he did not think that "Neohydriol" was usually retained in large quantities over a prolonged period unless there was gross over-filling of the lungs, in which case it was retained in the lymphatic system. He had not been able to utilize the water-soluble drugs satisfactorily owing to their extremely irritant effect; they produced violent coughing and distress to the patient.

Finally Dr. Villiers referred to hidden or unsuspected bronchiectasis, with a clinical history of repeated hæmoptysis or chronic cough, in which there was often a segmental bronchiectatic lesion. He said that such patients were amenable to surgical treatment with dramatic relief of symptoms, and were among the most satisfactory, from the point of view of prognosis, for whom bronchography could be undertaken. Complete filling of the whole bronchial tube was of course necessary, to be sure that only one segment or lobe was involved.

The Trade Exhibition.

The Trades Exhibition Subcommittee had at its disposal a considerable area on the ground floor of the Anatomy School. The space was allotted to a number of commercial houses. The following is a short account of the several exhibits.

May and Baker (Australia) Proprietary, Limited, displayed on their stand some of the more recent additions to their range of medical products. These included the following: "Plasmosan" brand of polyvinylpyrrolidone solution as a suggested alternative to blood plasma for use when the circulating blood volume is reduced; "Flaxedil" brand of gallamine triethiodide, a synthetic agent for production of muscular relaxation in anæsthesia; "Vegolysen" brand of hexamethonium bromide and "Vegolysen T" brand of hexamethonium bitartrate, for use in the management of hypertension; "Avomine" brand of promethazine 8-chlorotheophyllinate, an antihistamine drug; "Sulphatriad" brand of compound sulphonamide, a combination of sulphadiazine, sulphamerazine and sulphathiazole; "Thalazole" brand of phthalylsulphathiazole, a sulphonamide compound active in the intestinal tract; "Anthisan" brand of mepyramine maleate and "Phenergan" brand of promethazine hydrochloride, two antihistamine drugs, of which "Phenergan" is the more powerful.

Glaxo Laboratories (Australia) Proprietary, Limited, displayed a wide range of antibiotics, X-ray media, vitamin products, vaccines, analgesics, anæsthetics, and nutritional supplements. In addition to penicillin (Glaxo) and streptomycin (Glaxo) in various forms, a number of antibiotic preparations which have been developed by Glaxo Laboratories, Limited, were available for examination. These included "Estopen", the diethyl-aminoethyl ester of penicillin, which was stated to have a special affinity for lung and associated tissue, through which it was selectively excreted. Of topical interest was the new ester isonicotinic acid hydrazide (Glaxo), an adjunct to streptomycin in the treatment of tuberculosis. Other Glaxo products on display included "Cytamen" (vitamin B_{12}), "Dionosil", an aqueous suspension which was stated to provide a new approach to bronchography; l-thyroxine-sodium, a standardized, chemically pure lævorotatory thyroxine, and "Heptalgin", an effective analgesic.

W. RAMSAY (SURGICAL) PROPRIETARY, LIMITED, occupied stands numbers 3 and 4. Their exhibit was divided into three sections: medical books, surgical instruments and scientific instruments. The book display covered a wide range of the latest books in the fields of medicine and surgery. An outstanding volume was the 1952 "Current Therapy". Other titles of interest were Moyer's "Fluid Balance", Potter's "Pathology of the Fœtus and Newborn", "Surgical Practice of the Lahey Clinic", "Rheumatic Diseases", by the Rheumatic Diseases Congress, Cecil's "Specialties in General Practice" and Sandweiss's "Peptic Ulcer". A section of the display devoted to medical publications by Australian authors was an unusual and interesting feature. The instrument exhibit showed a range of stainless steel instruments made by Heljestrand of Sweden, and a handy-sized pocket spirometer. The firm of International Sutures of England was represented by a display of standard tubes and a wide range of atraumatic sutures, as well as straight, curved and half-circle needles in 30-millimetre and 50-millimetre sizes. The bronchoscopic section included a selection of Negus and Jackson bronchoscopes, œsophagoscopes, laryngoscopes and forceps. Also shown was a "Combitonograph", which makes a completely automatic recording of blood pressure on a stylus, suitable for filing. In the scientific exhibit were shown Beck microscopes, both monocular and binocular, and the phase contrast apparatus, as well as the Beck Lomag fenestration microscope. Students were interested in a display of half-sets of bones in plastic material, which were considered to be a good facsimile of the bones of the human skeleton. "Soltan" ultra-violet ray lamps were on view, as well as samples of surgery equipment and "Anglepoise" lights.

G. NISSEL AND COMPANY (AUSTRALIA), who have recently begun the manufacture of contact and corneal lenses in Melbourne, included in their display the latest types of lenses and associated developments at present being used in England, America and Europe. This firm is an associate firm of G. Nissel and Company, Limited, Siddons Lane, London. The latest developments in injection moulding were shown in a moulding shell designed by Treissman. On display were different types of contact lenses, minimum clearance lenses, fenestrated lenses and the wide-angle lens, which was stated to be an improvement on the ground spherical lenses of Zeiss, as well as two types of corneal lenses, ground spherical lenses and the individually fitted Baker-Nissel corneal lens made from a mould of the cornea. A fitting set of corneal lenses was also on show. It was stated that all lenses could have the ametropic correction incorporated in the "optic" on the lens. Other appliances shown included a foreign body locator for X-ray location of foreign bodies in the eye, a Klein applicator for intensive instillation of drugs, the Troncoso gonioscopic lens for obtaining an undistorted view of the angle of the anterior chamber of the eye for goniotomy, and a fundus examination lens for use with a slit-lamp. It was pointed out that the company had already manufactured the Ridley lens, known also as a lenticulus or intracapsular lens, the lenses being available in Melbourne.

MEDICAL EQUIPMENT SERVICES OF VICTORIA occupied the only stand at the trade exhibition featuring X-ray and electro-medical apparatus. In conjunction with their interstate associates, Both Medical Equipment of Sydney and Both Laboratories of Adelaide, they displayed a range of equipment of both English and Australian manufacture. Interest was shown in the electronic nerve stimulator, which was displayed for the first time in Australia. Another interesting exhibit was the Both Direct-Recording Electro-Cardiograph Unit. The Both electrocardiographs are of Australian manufacture; it was stated that the earlier battery-operated model was first made about twenty years previously and its revolutionary features created much interest and discussion at the time. The inventor of the Both apparatus, Mr. E. T. Both, was in attendance at the exhibition. The exhibit also included portable and mobile ultra-short wave units of local manufacture, X-ray apparatus made by General Radiological, London, audiometers, amplifying stethoscopes, and a neat, locally made X-ray generator.

JOHNSON AND JOHNSON PROPRIETARY, LIMITED, occupied stand number 8, on which they displayed a full range of their hospital and ethical lines, including surgical and ready-made dressings, sutures, "Bio-Sorb" and other products. They particularly featured "Gamophen" soap, a surgical antiseptic soap containing hexachlorophene, recently introduced from overseas.

F. H. FAULDING AND COMPANY, LIMITED, incorporated in their stand two tiers of rounded plate glass shelves on which ethical preparations were displayed, including "Vitaphen", "Pentone" and penicillin preparations. Interest was particularly shown in Faulding's latest release, the new stable aqueous procaine penicillin suspension, "Aquacillin". Other products featured were the Faulding disposable syringe pack for penicillin, and terramycin (Pfizer). Copies were made available of a well-prepared book on terramycin, which set out the comparative values of penicillin, streptomycin and terramycin against a wide range of organisms.

ANDREW'S LABORATORIES displayed the following recently introduced products from their extensive range of pharmaceutical preparations: "Andramine", an antihistaminic drug for motion sickness and nausea; "Andrazide", a brand of isonicotinic acid hydrazide, a new drug for the chemotherapy of tuberculosis; "Antabuse", an agent for the medical treatment of alcoholism; "Avagal", a brand of methantheline bromide for the control of hyperacidity and for the treatment of gastric and duodenal ulcers; bacitracin, an antibiotic with priority for topical application; khellin, a vasodilator and antispasmodic with prolonged action, used for *angina pectoris* and bronchial asthma; PAS sodium, a drug which is used for the treatment of tuberculosis and has also been used in the treatment of rheumatoid arthritis and osteoarthritis; "Trisulfa" and "Trisulfettes", sulphonamide combinations with improved efficiency and reduced toxicity; "Vibion", a pure preparation of vitamin B_{12} available in tablet and injection form.

BERLEI, LIMITED, arranged their exhibit to display to the best advantage several of their Camp-Berlei supports fitted to display models. One shown was designed to give support to patients suffering from visceroptosis and/or nephroptosis. Another was a back support designed for female patients suffering from back weakness caused by sacroiliac strain, lumbo-sacral strain, intervertebral disk disease and the like. Across the back of the display were two garments for male patients. One was a support made from elastic, fashioned to follow the lines of the figure at the base of the abdomen; this was described as a general support for use for patients requiring post-operative or general abdominal support. The other, number 481, was of interest to doctors seeking a support for use in the treatment or alleviation of low back pain in males. The number 891 nursing brassiere with the sling inside the cup was received favourably.

KODAK (AUSTRALASIA) PROPRIETARY, LIMITED, occupied stands numbers 12 to 16. They displayed examples illustrating the practical application in radiography of three types of X-ray film of their own manufacture: "Blue" brand for use with intensifying screens, "Kodirex" for the direct non-screen technique, and industrial X-ray film for the foundry and engineer. Of particular interest in the medical X-ray field were illustrations of some of the more recently specialized methods of examination, including cerebral-arteriography by the strip film and auto-camera method, and angiocardiography in which the "falling cassette" principle was used. Photography as applied to radiography for reproduction purposes, copying and teaching was also illustrated. Examples in black and white and in colour were shown to indicate the value of clinical photography in hospital and private practice. The display also provided information on processing methods and chemicals in radiography and photography.

PARKE, DAVIS AND COMPANY, LIMITED, occupied stands numbers 17 and 18. A striking innovation for display purposes in their stands was the use of lighted transparencies let into the back of the exhibit. The trans-

parencies related to "Chloromycetin", "Benadryl", "Dilantin", "Carbrital", "Benadryl Expectorant" and the "Kapseal" series. Products exhibited included the following: "Chloromycetin", a broad spectrum antibiotic stated to be relatively free from side effects, "Benadryl" products, including "Benadryl Kapseals", "Benadryl with Ephedrine Kapseals", "Steri-Vial Benadryl", "Elixir Benadryl", "Benadryl Expectorant", "Caladryl", "Benadryl" cream, "Benafedrin" and "Benacine"; "Carbrital Kapseals", a hypnotic and sedative drug stated to be free from after-effects; "Benacine", a combination of "Benadryl" and "Hyocine", described as an anti-emetic, antispasmodic and sedative for all types of vomiting, including vomiting of pregnancy, travel sickness, Parkinson's disease and dysmenorrhœa; "Caladryl", a new calamine and "Benadryl" lotion for the treatment of pruritus in any form; "Abdec" drops, a preparation of eight vitamins in a water-soluble base.

Wyeth Incorporated presented a comprehensive range of pharmaceutical specialties and took the opportunity to introduce some recent additions to the existing list. Among the products displayed were the following: "Feromax" with vitamin B_{12}, which was said to offer a new multiphase approach to the treatment of all nutritional anæmias, having a well-balanced formula providing therapeutic amounts of iron with other important nutritional elements, including vitamin B_{12}; "Wychol", a new palatable choline preparation containing inositol to aid in the prevention and treatment of liver damage in atherosclerosis and arteriosclerosis; "Thiomerin", a mercurial diuretic containing within its structure the thio group, which enables it to capture mercury and thus detoxify it, a feature which makes "Thiomerin" safe for subcutaneous injection. Also exhibited were "Amphojel", "Conestron", "Propion Gel" and "Meonine".

Imperial Chemical Industries of Australia and New Zealand, Limited, featured the following products of Imperial Chemical (Pharmaceutical), Limited (a subsidiary of Imperial Chemical Industries, Limited, Manchester, England), which they market in Australia: "Avloprocil", procaine-penicillin oily injection; "Cetavlon" brand of cetrimide B.P.; crystalline penicillin; "Kemithal" sodium (an intravenous anæsthetic); "Paludrine" (an antimalarial drug); pethidine hydrochloride B.P.; phenobarbitone B.P.; "Sulphamezathine" brand of sulphadimidine; "Sulphamezathine" penicillin powder; "Trilene" brand of trichloroethylene.

Burroughs Wellcome and Company (Australia), Limited, occupied stand number 23. The ethical pharmaceutical preparations on display included several which are now well established in their chosen fields of therapy, and two new products which have been introduced to the medical profession as the result of extensive research. The following products were featured: digoxin (B.W. and Co.), recommended for safety and certainty in cardiac therapy; "Neoepinine" brand of isoprenaline sulphate, for the treatment of asthma by sublingual administration or oral inhalation; "Methedrine" brand of methylamphetamine hydrochloride, stated to be of value both as a cerebral stimulant in depressed states and as a vasopressor agent in surgery; "Perazil" brand of chlorcyclizine hydrochloride, a new type of antihistaminic drug; "Kemadrin", a new synthetic compound for the symptomatic treatment of *paralysis agitans*; "Daraprim", a new antimalarial drug.

Angus and Robertson, Limited, Australian publishers and booksellers, occupied stand number 24. They exhibited a range of medical books representative of their stocks at their medical book departments in Sydney and Melbourne.

C.I.G. (Victoria) Proprietary, Limited, a unit of The Commonwealth Industrial Gases, Limited, represented in their exhibit in stands numbers 25 and 26 a wall in an operating theatre, in a labour ward, and in a general medical ward. By means of a working pipeline system the appropriate gases, oxygen and nitrous oxide, were connected to chromium-plated flush-type wall panels with diaphragm-type control valves for theatre use, and to self-sealing oxygen and nitrous oxide wall valves of the Schrader type for labour wards, and oxygen self-sealing valves for general wards. A special feature at one end of the exhibit was the gas cylinder room, which accommodated the oxygen and nitrous oxide cylinder manifolds, comprising the pipeline headers, master control valves for the banks of cylinders in use and in reserve, and the flexible coils for securing the cylinders to the respective manifolds. Pipeline pressure controllers were electrically connected to amber and red warning light chromium-plated wall panels to signify to the staff responsible the necessity for replacing the used bank of cylinders. Connected to the various wall panels were wall-type flowmeters with oxygen masks, oxygen humidifiers with nasal catheters, an oxygen bassinette, a small suction unit which could be held in the hand for midwifery purposes and for use by anæsthetists, and a finger-operated valve with mask for the resuscitation of infants. Interesting items of equipment for obstetricians were the C.I.G. type "A" nitrous oxide analgesic apparatus with a special locking device on the gas percentage control dial, and a new type handpiece to accommodate the face-mask; also the E. and J. "Resuscinette" working model, complete with its automatic resuscitator and "Henri", the clinical doll in an incubator, with temperature and humidity electrically controlled by the apparatus. Of interest to anæsthetists was the display of the C.I.G. and Boyle types of apparatus, infant and juvenile carbon dioxide absorbers, and endotracheal accessories. Of interest to general practitioners was the general range of oxygen therapy and resuscitation types of apparatus.

Felton, Grimwade and Duerdins Proprietary, Limited, occupied stands numbers 28, 29, 30 and 31. The display included exhibits from the D.H.A. Medical Specialty range, Lederle Laboratories, Woolwich-Elliott Chemical Company Proprietary, Limited, Smith and Nephew, Limited, and a display of surgical instruments.

The D.H.A. Medical Specialties included the "Bitone" range and "Vitadex", an effervescent preparation of dextrose and vitamins B_1 and C. The extensive range of D.H.A. products available under the *Pharmaceutical Benefits Act* was shown, "Dimerzine" and "Soluvac" and ampoules being prominent.

In the Lederle Laboratories section the wide-spectrum antibiotic aureomycin was featured, and other Lederle products exhibited included "Artane" and "Lederplex".

The products of the Woolwich-Elliott Chemical Company Proprietary, Limited, that were exhibited included anæsthetic ether B.P., ethyl chloride B.P., solvent ether B.P., ethereal soap B.P.C., *collodion flexile* and collodion surgical B.P., ozonic ether, amyl nitrite and aromatic ammonia capsules. This section featured the history of the manufacture in Australia, from local raw materials, of anæsthetic ether and anæsthetic ethyl chloride which had been pioneered by the company nearly forty years previously. Much patient and painstaking research has gone into the manufacturing processes, storage and packaging of these anæsthetics to produce consistently the high standard of purity imposed by the exacting standards of the present British Pharmacopœia.

The products of Smith and Nephew, Limited, included the full range of "Elastoplast" bandages and plasters, "Gypsona" plaster of Paris bandages, "Diachylon" bandages, waterproof "Elastoplast" plasters, "Viscopaste" and "Ichthopaste" bandages (Unna's paste type), and other types of prepared surgical dressings. Two new products featured, which should be available in the near future, were "Elastoplast" porous spread extension strapping and glass fibre bandages for fracture immobilization.

The display of surgical instruments came from the surgical department of Felton, Grimwade and Duerdins Proprietary, Limited, and featured "Coldlite" instruments, an electric plaster saw, and several instruments which had just arrived from overseas.

Reckitt and Colman (Australia), Limited, Pharmaceutical Division, Sydney, featured in their display "Disprin", the new soluble aspirin, which, after its success-

ful marketing and clinical appraisal in the United Kingdom, was introduced into Australia in the latter part of 1950. It was stated that "Disprin" made available aspirin in a soluble and substantially neutral form, an achievement which had been made possible by overcoming the inherent instability of calcium aspirin. It possessed all the analgesic, sedative, antipyretic and antirheumatic qualities of aspirin, but because of its solubility was unlikely to irritate the gastric mucosa, even when taken over long periods or in massive doses during intensive salicylate therapy. By virtue of its solubility it was more rapidly absorbed and consequently more speedy in its clinical effect. "Disprin" tablets readily react in water to form a palatable solution of calcium aspirin. On the stand was also displayed "Dettol" antiseptic, the claim being made that its highly efficient germicidal properties, which were well maintained in the presence of blood and pus, were enhanced by its non-poisonous, non-corrosive, deodorant and pleasant smelling qualities. The "Dettol" display included "Dettol" obstetric cream, which is water-soluble, consisting of 30% "Dettol" in a gum tragacanth base, and is intended for disinfection of the patient's skin, the attendant's hands, and gloved hands. Surgical "Dettol", the most recent addition to the range of "Dettol" products, was also shown. It was stated that surgical "Dettol" had been specially designed for pre-operative skin disinfection and for the rapid preparation of the patient's skin for injections. It is in alcohol solution and is ready for immediate application to the skin. It incorporates a colouring compound which is not a dye, so that the prepared area may be clearly defined. It dries rapidly, leaving the skin in a non-slippery condition, and is available in two colours, orange and blue.

BOOTS PURE DRUG COMPANY (AUSTRALIA) PROPRIETARY, LIMITED, displayed on their stand a complete range of "Heparin" preparations for anticoagulant therapy. A chart showing the average prolongation time following the administration of "Heparin" was displayed, together with products for intravenous and intramuscular "Heparin" therapy. The new intramuscular "Heparin" preparations, "Heparin Retard" and "Heparin 25,000 units" were prominently featured. A section of the stand was devoted to medicinal products evolved from war gases—namely, BAL, which is used for metallic intoxication; nitrogen mustard, which is used for the treatment of leuchæmias; and D.F.P. (di-isopropyl fluorophosphonate), which is used in the treatment of glaucoma. A full range of X-ray media was displayed, including a new "micro-fine" barium contrast medium with super-suspendible properties. A prepared starch glove powder, K.285, was also shown. It was claimed that this overcame the possibility of the formation of siliceous granuloma, which had been reported following the lubrication of rubber gloves with talc powder. A diagram showed the production of insulin from the raw pancreas to the finished article, and with it was a demonstration of the new safety metal cap now appearing on Boots insulin vials. Other items of interest were the new aluminium hydroxide gel preparation "Alimex", containing magnesium hydroxide, and the "Cassady" hypodermic needle-cleaning machine, which is now available in Australia, being manufactured under licence from America.

SIGMA COMPANY, LIMITED, Melbourne, occupied stand number 36. They displayed their proprietary penicillin preparations, and also pharmaceutical specialties and some products now made in Australia by the company on behalf of overseas firms (Bengue and Company, Limited, England, Bailly Limited, and Moore Medicinal Products). "Benzopen" lozenges, which were among the products displayed, are penicillin lozenges with added benzocaine for use in oral infections associated with pain and after tonsillectomy *et cetera*. "Cilicaine" is a "micro-fine" form of procaine penicillin for aqueous injection. It is produced in three forms: "Cilicaine Simplex" and "Cilicaine Fortified" (procaine and potassium penicillin) for extemporaneous preparation of aqueous suspensions, and "Cilicaine Suspension", a stable buffered aqueous suspension prepared for immediate use, and containing added antiseptic for maintenance of sterility during repeated withdrawals. "Duocillin", a topical penicillin powder, contains 7500 units each of procaine penicillin and calcium penicillin in a non-sensitizing, slowly soluble, but completely absorbable diluent. "Larocillin" is a form of penicillin-lactose powder for ear, nose and throat work. "Orocillin Fort." tablets each contain 200,000 units of buffered penicillin for oral therapy. "Penacetam" eye ointment contains penicillin and sulphacetamide and is used for controlling ocular infections and irritations. In "Penicrin" powder and ointment penicillin is combined with aminacrine hydrochloride. The new "Sigma" plastic puffer tube is an insufflator container for all powders for topical therapy. "Neophyll" cream is a chlorophyll cream for enhancing epithelialization, deodorization and bacteriostasis. "Chexode" tablets contain chlorophyll and are taken by mouth to reduce body odours *et cetera*. The following products were also on display: "Vimix" tablets (containing vitamin *B* complex with added vitamin *C*); "Heptamin" (vitamin B_{12} injections for the anæmias); "Bengue Balsam" (for local pain and spasm); "Pulmo Bailly" (a guaiacol and codeine preparation for coughs, colds, bronchitis *et cetera*); "Rhinamid" (nasal drops for the treatment of coryza, hay fever, sinusitis *et cetera*); "Metheph" tablets (for oral treatment of enuresis and bronchial asthma).

BRITISH PHARMACEUTICALS PROPRIETARY, LIMITED, had a display in which the central motif was a large facsimile of a box of ACTH (Organon), surmounted by a large reproduction of a hypodermic syringe. In the exhibit were the preparations of W. Martindale, Limited, and of Savory and Moore, Limited, of London, and "Rybarvin", "Serocalcin" and the "Kaylene" series of adsorbents were prominently displayed. A complete range of hormone preparations by Organon Laboratories, Limited, was shown, including the œstrogen preparation "Lynoral" and the androgen preparations "Neo-Hombreol" and DOCA (deoxycortone). The liver extracts "Pernæmon Forte" and "Pernæmon Crudum" were also shown. The British principals of the exhibitors provided a number of products for the treatment of allergy, for use in local anæsthesia and in the field of preventive medicine, and the most recent advances in endocrinology, including combinations of hormones, of interest to general practitioners, gynæcologists and surgeons. These last-mentioned preparations, products of "Organon" research, included "Mixogen" and "Menstrogen", and advances in androgen and implant therapy.

OXYGENAIRE (AUSTRALIA) PROPRIETARY, LIMITED, designers and manufacturers of oxygen tents and oxygen therapy equipment, for the first time showed products made entirely in Australia. Among the equipment shown were the following: "Queen Charlotte" oxygen tent for infants and premature babies; "Wigmore" oxygen tent for adults or children; "Oxyair" face-mask unit; "Oxycillin" atomizer for the administration of oxygen and penicillin in aerosol form.

CHARLES MCDONALD PROPRIETARY, LIMITED, occupying stand number 40, showed a number of products. Among these were the following. "Hæmofort" is an enteric-coated tablet for the treatment of hypochromic anæmia and nutritional iron deficiencies; a sculptured model showed the successive "coats" which are applied to ensure its efficacy. A recently introduced product, "Malonal", was displayed in its four colours, each indicative of its given strength. Among the ampoule products were the following: "Synthanal", "Parentosol" vitamin B_{12}, "Parentosol Pyridermin" (vitamin B_6), "Parentosol Vibafort" (vitamin B_1), "Parentosol Neuplex" (vitamin *B* complex), "Protolex" (liver extract), and the company's latest product, "Diurophylin" (aminophylline), for both intramuscular and intravenous administration.

CIBA LIMITED, BASLE, SWITZERLAND, in their display gave prominence to the newly introduced "Antistine"-"Privine" nebulizer, "Vioform" cream, "Perandren" and "Percorten". The "Antistine"-"Privine" nebulizer is a new and convenient pack for pocket or handbag, containing a combination of the antihistaminic "Antistine" with the vasoconstrictor "Privine"; the dropper bottle is still available, but the nebulizer is more convenient for use at work or when travelling. "Vioform" cream (iodochlorhydroxyquinoline) is valuable as an antiparasitic and antibacterial

agent and in the treatment of secondary infections; it is recommended in the treatment of dermatoses, eczema, impetigo and psoriasis. "Perandren" (synthetic testicular hormone) is useful in the male climacteric, and is also indicated in hypogonadism and prostatic hypertrophy; it is available in the form of "Linguets" (for sublingual administration), ampoules, "Crystules" (for comparatively long therapeutic action), implant tablets and multiple-dose vials. The 25-milligramme and 50-milligramme "Perandren" ampoules and the 10 cubic centimetre vials are available under the *Pharmaceutical Benefits Act* for the treatment of mammary carcinoma. "Percorten" (synthetic adrenal cortical hormone) is recommended for the treatment of Addison's disease, Addisonism, asthenia and fatigability; in the exhibit trial indications for the use of "Percorten" in rheumatoid arthritis and pink disease were also given. "Percorten" is available in the following forms: "Linguets", ampoules, multiple-dose vials, implant tablets and "Crystules". The packs of "Percorten" available under the *Pharmaceutical Benefits Act* are ampoules (5, 10 and 50 milligrammes), "Crystules", implant tablets and 10 cubic centimetre vials. Information on Ciba's many other pharmaceutical preparations was available on request, including the latest edition of the "Ciba" sex hormone handbook.

MEDICAL AND INDUSTRIAL EQUIPMENT, LIMITED, of London, were represented by THE AMALGAMATED DENTAL (AUSTRALIA) PROPRIETARY, LIMITED, of Melbourne, at stand number 43, where was displayed a prefabricated stand together with a representative range of equipment and accessories for anæsthesia, specially sent out from England. One of the principal exhibits was the "M.I.E." transportable anæsthetic apparatus for general anæsthesia, embodying all the latest features of equipment. This model had been supplied for the operation on His Majesty King George VI. Also on display were a compact portable anæsthetic apparatus in a carrying case and a range of laryngoscopes and bronchoscopes also in carrying cases. A comprehensive range of accessories such as airways and catheter tubes was shown.

THE AMALGAMATED DENTAL (AUSTRALIA) PROPRIETARY, LIMITED, as sole distributors in Australia for Everett Products, took the opportunity of showing "Solila" needles, which are now wholly manufactured at Portland, Victoria. A range of Everett hypodermic syringes was also shown, and the fact that Luer-Lok syringes are now available was made known.

BUTTERWORTH AND COMPANY (AUSTRALIA), LIMITED, showed Butterworth's medical publications, including the well-known "British Encyclopædia of Medical Practice", now being published in its second edition, and its companion work "British Surgical Practice". In these two standard reference books recognition is given to Australian medicine by the inclusion in the lists of consultant editors of the names of Sir Hugh Devine and Professor H. R. Dew. On view were all published books in Butterworth's new style of medical publications, the "Modern Trend" series and the "Modern Practice" series. While the objects of the two series differ, both represent an advance in medical literature. They are not written by one or perhaps two authors, as was the custom in older text-books. Each is a logical arrangement of authoritative contributions by as many as 20 contributors from nearly half as many countries. The subjects covered include dermatology, radiology, gastro-enterology, urology, obstetrics and gynæcology, ophthalmology, orthopædics, pædiatrics, pathology, public health, anæsthesia, fevers and tuberculosis.

Other general books exhibited covered a wide variety of subjects; the books on pathology and tumours by Professor R. A. Willis were included. Butterworth's exhibit showed that they have brought into the field of medical publishing the high standard of production and advancement for which they have been known in legal publishing for a century and a half.

SCHERING PROPRIETARY, LIMITED, which is distributing the products manufactured by Schering A.G., Berlin, occupied stand number 45. Their display had a portrait of Ernst Schering, who founded the German house approximately 100 years ago, and a picture of the present German undertaking. Three comparatively new Schering products were shown. "Duogynon" is a combination of progesterone and œstradiol benzoate, and is used in the treatment of secondary amenorrhœa. Two injections are given on two successive days, and bleeding invariably occurs in four to six days. If no bleeding occurs within that period it may be assumed that the patient is pregnant. In this manner "Duogynon" may also be used in the early diagnosis of pregnancy. "Pernexin" is a well-tolerated, highly concentrated liver preparation containing also 30 microgrammes of vitamin B_{12} in each ampoule; it is used in the treatment of pernicious and other forms of anæmia. One ampoule per month is usually sufficient as an average maintenance dose in pernicious anæmia, and this fact simplifies liver therapy for both the patient and the doctor. This preparation is available under the *Pharmaceutical Benefits Act*. "Allercur" is a new, effective, well-tolerated antihistaminic preparation. It produces no undesirable side-effects, such as dizziness and sleepiness. It may be taken orally or given intramuscularly or intravenously, it may be taken during working hours without impairment of the power of concentration or the speed of reaction, and it is well tolerated even by small children. Samples of the preparations were available, as was a compendium listing all preparations manufactured by Schering A.G., Berlin.

THE PHARMACEUTICAL SOCIETY OF VICTORIA exhibited a number of formulæ from the "Australian Pharmaceutical Formulary" (A.P.F.), including preparations from the new edition, to be published at a future date. The A.P.F. preparations shown were selected to represent types based on therapeutic indications, and were as follows: *Cremor Cereæ Sulphonatæ*, an emulsion cream of the oil-in-water type, a base for antibiotics and other drugs; *Cremor Aquosum*, a water-in-oil cream for oil-soluble substances; *Elixir Glycerophosphatum Compositum*, a tonic vehicle of wide use; *Elixir Ephedrinæ et Phenobarbitoni*, indicated in asthmatic conditions and enuresis; *Glycanthum Oxycyanidum*, a lubricant jelly; *Linctus Tussi Ruber*, a sedative cough linctus; *Lotio Benzylis Benzoatis*, for the treatment of scabies; *Mistura Aluminii Hydroxidi*, indicated in conditions of hyperchlorhydria; *Unguentum Benzocainæ et Adrenalinæ*, used in hæmorrhoidal and pruritic conditions. The following new A.P.F. preparations were also shown: *Applicatio Dicophan* for use in body infestations; *Applicatio Laurylis Thiocyanatis*, a preparation for pediculosis; *Auristillæ Sulphacetamidi Sodii*, a buffered sulphacetamide formula for ear infections; *Collyrium Sodii Bicarbonatis et Methylis Cellulosi*, thickened solution for use with contact lenses.

Reviews.

PATHOLOGY OF THE CELL.

"PATHOLOGY OF THE CELL", by Professor G. R. Cameron, is a massive work of great importance to biologists in general as well as to physiologists, cytologists and pathologists.[1] The origins of the cell concept are traced with a critical discussion of each theory that has influenced human thought in the realms of morphology and function. The first portion of the book is therefore concerned with a description of the normal cell and the various means of investigating its structure and function. By far the greater portion of the book is that devoted to the abnormal cell.

The foundations of cellular pathology by Goodsir and Virchow are presented in some detail; then follow descriptions of the cell's reaction to injury. This naturally leads to the fundamental proposition of the cell theory: (i) The cell is the unit of structure and function. (ii) All other material such as intercellular substance *et cetera* is a secretion of

[1] "Pathology of the Cell", by Gordon Roy Cameron, M.B., D.Sc. (Melbourne), F.R.C.P., F.R.S.; 1952. Edinburgh: Oliver and Boyd. 10" × 6¾", pp. 856, with 64 plates and 41 text figures. Price: £4 4s.

cells. (iii) Cells possess the same functions as the organism. (iv) Cells transmit the hereditary qualities of the race. (v) Cellular reactions to injury constitute the basis of disease.

The third portion of the book is a critical examination of objections to the cell theory. While these objections do not invalidate the theory, they indicate that there are supracellular and organismal influences in both health and disease.

The last section is entitled "The Cellular Pathology of the Future" and some of the means of investigating submicroscopic function are described, such as polarization optics and X-ray crystallography.

This book is a history of pathology and it marks an epoch of great discoveries, to which the author himself has contributed. Without philosophical insight and logical presentation this volume would have been merely an encyclopædia. Instead, as the dust cover claims, it is a fairly safe assumption that future work cannot date this book and it should long remain the definitive study of the cell. There is a comprehensive double index both by author and by subject as well as an extensive bibliography.

PRACTICAL THERAPEUTICS.

"PRACTICAL THERAPEUTICS", by Martin Rehfuss and Alison Price, is a remarkable book.[1] Its aim is to give the medical practitioner a guide to treatment of all diseases. It begins with 59 pages concerning general therapeutic principles. It deals with the psychological aspect of medical treatment, or the approach to the patient, in a way rarely discussed in such treatises. This is one of the most valuable chapters in the book, if anyone will read it. There is a chapter on what the doctor should carry in his bag which should be helpful to the initiate. Symptomatic therapy is next discussed, the section beginning with acute abdominal emergencies. Acidosis, anorexia, anuria, hæmoptysis, are dealt with in alphabetical order, right through to tetany. There is an excellent summary of the treatment of singultus or hiccup. Six hundred pages are then devoted to treatment of specific disorders. The most practical advice and the most detailed description of the methods advocated are given. Thirty pages are devoted to the treatment, and to some extent, to the diagnosis, of *diabetes mellitus*. The last 200 pages are devoted to special treatment. This includes chapters on treatment with sulphonamides, antibiotics and a variety of drugs. The treatment of epistaxis and of various nasal and aural disabilities is dealt with. Skin diseases, psychotherapy, pre-operative treatment and occupational therapy have each two or three pages devoted to them.

There are 18 contributors to this book, many of them well known in America and elsewhere. Illustrations are mostly pen and ink drawings of the human body, with arrows pointing to the site of any lesions connected with the subject under discussion. Altogether, this book is a mine of information.

RECENT ADVANCES IN MEDICINE.

AFTER five years, the thirteenth edition of "Recent Advances in Medicine", by Beaumont and Dodds, has arrived.[2] Apart from the new article on "The Collagen Diseases" and "Isotopes in Medicine", the material in the book is mostly well known and as such is scarcely in place in a book called "Recent Advances". For instance, many pages are devoted to the finer details in the technique of artificial pneumothorax and pneumoperitoneum—this at a time when they are being used less and less after many years of well earned popularity. In the antibiotic chapter, aureomycin, chloramphenicol, streptomycin and terramycin are described with their indications, together with a useful table showing which antibiotic is useful in various diseases. Bacitracin receives no mention. The article on electrocardiography is a good summary of its present status, but much more could be written on the drugs in cardiology, no mention being made of procaine and its derivatives or the use of "Ouabaine". Far too much space is devoted to out of date and historical techniques and far too little to many ideas and theories of modern medicine such as, for instance, the ætiology of atherosclerosis, which even if they are still controversial at least are modern. "Stodgy" is probably the best description of this book.

[1] "A Course in Practical Therapeutics", by Martin Emil Rehfuss, M.D., F.A.C.P., and Alison Howe Price, A.B., M.D.; Second Edition; 1951. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 11½" × 9", pp. 956, with 96 illustrations. Price: £8 1s. 3d.

[2] "Recent Advances in Medicine: Clinical, Laboratory, Therapeutic", by G. E. Beaumont, M.A., D.M. (Oxon.), F.R.C.P., D.P.H. (London), and E. C. Dodds, M.V.O., D.Sc., Ph.D., M.D., F.R.C.P., F.R.I.C., F.R.S. (Edinburgh), F.R.S.; Thirteenth Edition; 1952. London: J. and A. Churchill, Limited. 8½" × 5½", pp. 412, with 59 illustrations. Price: 27s. 6d.

CLINICAL HEART DISEASE.

IT is said with some truth that it is more difficult to write a good short story than it is to expand the story to the length of a good novel. In the special subject of cardiology it is easily apparent that the monograph is more difficult to write than the text-book on heart disease. In recent years there has been a spate of text-books on heart disease. The bulk of these large volumes is of necessity made up of the same ingredients and the method of presentation varies little. When one subtracts from the subject matter what is ephemeral and what is common to all the text-books there may remain little to demonstrate that the work has been written by one who has a contribution to make to knowledge. Of the number of such text-books, one will serve as an admirable reference book. Yet there are only two monographs written in English in which are distilled on every page the essence of personal experience, knowledge and wisdom. The writers are the late Sir Thomas Lewis and Dr. Samuel Levine. A fourth edition of Levine's "Clinical Heart Disease" is interesting to compare with the first edition published in 1936.[1] Great progress has been made in the fields of physiology and therapeutics in these years, yet so broadminded was the foundation of this monograph in 1936 that its framework is virtually unchanged.

For example, the operation of valvulotomy for mitral stenosis has demonstrated the importance of mitral incompetence, a disorder that was stressed by Levine in 1936 though largely ignored by cardiologists at the time. No one has added more than Levine over these years to the understanding of mitral systolic murmurs. Nevertheless, it is well to bear in mind that loud systolic mitral murmurs heard in patients with mitral stenosis do not always indicate mitral incompetence. This has been proven at operation.

As might be expected, the chapter entitled "Angina Pectoris and Coronary Thrombosis" is excellently presented. Nevertheless, as the work is written largely for general practitioners it would be to their advantage to realize that actual thrombus formation is by no means common as the cause of prolonged cardiac pain. It might be wiser in the first instance to use the more general term coronary occlusion. In this country the point is not unimportant in workers' compensation claims. In the discussion on the value of functional tests in the diagnosis of angina, the most important sentence is that which emphasizes their danger. Levine has modified considerably his views on the necessity for prolonged bed rest, and suggests that even from the onset the patient may be allowed to spend the greater part of the day sitting in a comfortable chair. The discussion on treatment of coronary thrombosis covers all manner of problems which will strike a chord in the minds of practising doctors. The use of insulin and the management of diabetes in the early stages of coronary thrombosis are examples of the way in which the author uses his inquiring mind. There are many other examples scattered throughout the book. The use of digitalis and quinidine in coronary thrombosis is described in a practical manner. These drugs naturally come up for discussion frequently in various sections of the book, as does also aminophyllin. It is perhaps unfortunate that the dangers of quinidine are emphasized. Surely it is a safe and valuable drug which should be understood better and availed of more frequently in general practice. By contrast it is time that a more critical view of the use of aminophyllin was taken.

The chapter on hypertensive heart disease and arteriosclerosis retains the section on gallop rhythm and covers the relevant facts more clearly than many longer dissertations on triple rhythm which have successfully confused the ears and minds of undergraduate and post-graduate students.

[1] "Clinical Heart Disease", by Samuel A. Levine, M.D., F.A.C.P.; Fourth Edition; 1951. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 10" × 6½", pp. 570, with 192 figures. Price: 73s. 9d.

One might criticize the chapter on diseases of the pericardium for a slight lack of balance. No doubt tuberculous pericarditis is uncommon, but it is more important than pericarditis with chronic nephritis, and pericarditis with coronary thrombosis. It is the common precursor of constrictive pericarditis, and the latter is important because it is amenable to surgical treatment. It is doubtful if Levine's explanation for the presence of left pleural effusion with pericarditis is correct, for there is a more simple anatomical explanation.

The chapter on diseases of the aortic and tricuspid valves seems to contain a disproportionate amount on tricuspid stenosis. The jugular venous pulse is an important sign of tricuspid disease which apparently the author does not regard highly, for he does not mention it. Osler used to emphasize the occurrence of hepatomegaly and ascites in mitral stenosis without evidence of tricuspid disease, yet he was well aware of all the features of tricuspid stenosis and incompetence as reference to his superb text-book will show.

In the first edition, Chapter XIX is headed "The Treatment of Congestive Heart Failure". The corresponding chapter in the latest edition is headed "Nature and Treatment of Congestive Heart Failure". This is a sign of the times. All that can be said is that the author presents the evidence, but does not provide the solution to the problem of the nature of congestive heart failure. Time has passed since this edition was published and the problem is still unsolved. In this time, too, more knowledge has accumulated about fluid and electrolyte balance and the use of low-salt diets and ion exchange resins. There are other advances too in the medical and surgical treatment of heart disease. Yet it is not on these matters that the value of this monograph depends. It is well that the preface to the first edition is retained in the fourth edition. It is possibly more important that this should be read now than when it was first published in 1936. Here is the heart of the matter, for the lasting quality of the work is to be found in the attitude of mind of the author. He sees medicine whole, can pluck an analogy from neurology or endocrinology, and weaves cardiology into the place where it belongs in the pattern of men's lives. Those who know Dr. Levine will appreciate that he has succeeded in rare degree in conveying in his book the intimate personal qualities of a wise physician and an honest man.

TOPICS IN PHYSICAL CHEMISTRY.

THE usual text-books on physical chemistry are too generalized and require a knowledge of mathematics beyond that commonly possessed by students of medicine, students of biochemistry and physiology and medical men wishing to obtain a better knowledge of the physico-chemical bases of biological activities. A book which goes a long way towards solving these difficulties is "Topics in Physical Chemistry: A Supplementary Text for Students of Medicine" by W. Mansfield Clark, Professor of Physiological Chemistry at the Johns Hopkins University School of Medicine.[1] This is not a text-book on physical chemistry, but the topics dealt with include all those which should be of interest to students of human biology.

It is a large book, there are 775 pages, and much of the treatment is in advance of what most readers will require, but the author suggests that the book must be used with common sense, each reader taking only what he needs from each section. It is not an easy book to read, but as the author writes in the introduction to one chapter: "There is no royal road to knowledge, in the sense of a road along which one can roll without the expenditure of energy, this chapter is not designed for the lazy reader." There is, of course, a good deal of mathematics in the book, but the reader is led along by easy steps so that a little application will make even difficult subjects understandable. Wherever possible all the data given are obtained from human biology and often the treatment is unconventional from the point of view of the pure chemist. Indeed, one chapter is headed "Impressionistic Sketches of Phenomena Associated with Semipermeable Membranes, Artificial and Natural".

There are thirty chapters covering a very wide range of topics from simple measurement of volumes to glass electrode, polarograph, isotopes, refraction, radiant energy, luminescence, with all the usual topics which might be of interest to the type of reader for whom the book is written. This is a book which can be recommended without hesitation to all who wish to have a better understanding of physical chemistry in relation to human biology; it should be a very useful reference book to any medical man writing articles which involve physico-chemical problems.

[1] "Topics in Physical Chemistry: A Supplementary Text for Students of Medicine", by W. Mansfield Clark, Ph.D., Sc.D.; Second Edition; 1952. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 9" x 6¼", pp. 794, with many text figures. Price: £5 7s. 6d.

A YEAR BOOK OF PATHOLOGY AND CLINICAL PATHOLOGY.

WITH the section on pathology edited by H. T. Karsner, and that on clinical pathology edited by A. H. Sanford, "The 1951 Year Book of Pathology and Clinical Pathology" maintains the standard and general policy of preceding volumes.[1] In particular, the practice is maintained in the section on pathology of including special contributed articles on particular subjects. The chapter on general pathology contains a special article on epidemic hæmorrhagic fever, the epidemic disease that has appeared among the United Nations forces in Korea. The abstracts in this chapter are grouped under the heading of infectious diseases, inflammation and healing, thermal injury, immunity and hypersensitivity, granulomatous disorders, neoplasia and miscellaneous. The chapter on the cardio-vascular system contains three special articles concerned respectively with the pathogenesis of arterial lesions, with atherosclerosis, lipoproteins and coronary artery disease, and with avian arteriosclerosis. The other chapters in this section deal with the hæmopoietic system, the respiratory system, the alimentary tract and associated glands, the urinary system and male genitalia, the female genitalia and the breast, glands of internal secretion, bones and muscles, skin, and the nervous system and the eye. The section on clinical pathology has chapters on hæmatology, chemistry, bacteriology, mycology, serology, cerebro-spinal fluid, parasitology, allergy, cytology, endocrinology, microscopy and apparatus. Both general medical literature and that devoted to pathology and its specialties have been covered in the selection of abstracts for this volume. For this reason it should be a valuable supplement to the reading even of those who manage to keep up with the literature relating to their particular sphere of activity.

A YEAR BOOK OF DERMATOLOGY AND SYPHILOLOGY.

ACCORDING to established custom the editors of "The 1951 Year Book of Dermatology and Syphilology", Marion B. Sulzberger and Rudolf L. Baer, open their Year Book with an original article.[2] This year it is entitled "Some Common Errors in the Management of Skin Diseases". Though the views expressed are their own and will not all be accepted by every other dermatologist, this article is practical and based on wide experience and should be useful as what it sets out to be—a guide for the general practitioner. The rest of the book is made up of carefully annotated abstracts selected by the editors from journals received by them within the period from December, 1950, to November, 1951. The twelve chapters are devoted to treatment and prevention, X-ray and other physical therapy, eczematous dermatitis, urticaria and allergy, drug eruptions, miscellaneous hæmatogenous dermatoses, other dermatoses, cancers, pre-cancerosis and other tumours, fungous infections, other infections and infestations, venereal diseases and their treatment (exclusive of gonorrhœa), investigative studies, and miscellaneous. As the editors point out in their introduction, work on cortisone and related steroids and on ACTH in dermatology remains prominent and is the subject of many of the papers abstracted; however, the record is now one of steady progress rather than of brilliant discoveries. Reference is also made to many other articles reporting substantial scientific pro-

[1] "The 1951 Year Book of Pathology and Clinical Pathology (January-December, 1951)": Pathology, edited by Howard T. Karsner, M.D., LL.D.; Clinical Pathology, edited by Arthur Hawley Sanford, M.A., M.D.; 1952. Chicago: The Year Book Publishers, Incorporated. 8" x 5¾", pp. 454, with 147 illustrations. Price: $5.50.

[2] "The 1951 Year Book of Dermatology and Syphilology (December, 1950-November, 1951)", edited by Marion B. Sulzberger, M.D., and Rudolf L. Baer, M.D.; 1952. Chicago: The Year Book Publishers, Incorporated. 8" x 5¾", pp. 476, with 61 illustrations. Price: $5.50.

gress; these include further studies in the use of radioactive isotopes, of newer and older antibiotics, and of vitamins; studies differentiating between melanogenesis in benign and in malignant pigmented growths; studies on basic phenomena influencing the loss and the regrowth of hair; and studies on the control of tropical skin diseases and venereal diseases. This Year Book is well prepared and should be of wide interest.

AN ATLAS OF HUMAN ANATOMY.

AN "Atlas of Human Anatomy", by Franz Frohse *et alii*,[1] is an attempt to provide a pocket-sized text-book of anatomy, and covers in 80 pages the skeletal, muscular, circulatory, nervous, alimentary, respiratory, and urogenital systems, and is claimed by the authors to meet the demands of both layman and medical practitioner.[1] The various systems are covered in from two (for the circulatory) to six (for the skeletal) pages. The many charts of portions of the body are well done, but to cover the skeleton or the muscular system in two diagrams, and the nervous system in one, merely produces a mass of ramifying lines. Terminology is mixed and hardly up to date, although Latin equivalents are given in parentheses. Various minor inaccuracies occur, such as a twelve-inch duodenum.

On the whole, it is a book for the ardent student preparing for a first-aid examination and not for a medical student or doctor. The diagrams are good but elementary. It will hardly be a book to recommend for a medical library.

ANNUAL REVIEW OF MEDICINE.

AMONG the many annual volumes that now appear, "Annual Review of Medicine" maintains a particularly high standard. The basic design of the book is "that each section shall be written by an authority in the field concerned, and that there shall be discussion of the subject in the light of contemporary literature and the author's special knowledge, rather than a cataloguing of references or stringing together of abstracts". The first chapter of Volume III,[2] which has the general heading of infectious diseases, is devoted to a discussion of the effects of cortisone and ACTH on infection. Other chapters are concerned with diseases of the gastro-intestinal tract and of the cardio-vascular, urinary, reproductive, nervous, reticulo-endothelial and respiratory systems, as well as with nutrition and nutritional diseases, psychiatry, anæsthesia, radiology, radioactivity (effects of whole body irradiation), diseases of the eye, laboratory aids to diagnosis and therapy, toxicology, neoplastic diseases and hæmatology. A concluding section presents an annotated list of reviews in medicine, which is stated to include most of the reviews of particular subjects which have appeared in the literature between January and October, 1951; this will be particularly useful to anyone who wishes to know what has been written on any particular subject, while avoiding the tedious and unnecessary task of making a first-hand survey of the literature. Those who wish to keep up to date with current medical views and at the same time maintain a critical and scientific approach to them, should find "Annual Review of Medicine" most acceptable.

A YEAR BOOK OF ENDOCRINOLOGY.

APPEARING as the second volume of this particular year book series, "The 1951 Year Book of Endocrinology" has passed from the editorial hands of Willard O. Thompson to those of Gilbert S. Gordan, but without any particular changes in editorial policy.[3] On the basis that those working in other fields may not always be fully conversant with endocrinology, as well as that the endocrinologist himself cannot be expected to have had wide experience of the clinical aspects of all diseases mentioned by his colleagues, the editor has wisely enlisted the aid of persons experienced in the various specialties in his review of individual sections. He also maintains the helpful custom of introducing each of the main sections with a short summary of related matters of interest. It is interesting to note that cortisone, corticotrophin and allied compounds have a section to themselves. Other sections are devoted to the pituitary gland, the thyroid gland and exophthalmos, the parathyroids, calcium metabolism and metabolic bone diseases, the adrenal medulla, the adrenal cortex, sexual precocity, the female reproductive system, the testes, *diabetes mellitus* and carbohydrate metabolism, the endocrine treatment of neoplastic diseases, and miscellaneous subjects. This particular Year Book should be, in one part or another, of interest and value to practitioners in all fields of medicine.

[1] "Atlas of Human Anatomy", by Franz Frohse, Max Brödel, and Leon Schlossberg, with an explanatory text by Jesse Feiring Williams, M.D.; New Edition; 1952. London: George Allen and Unwin, Limited. 8½" × 5½", pp. 90, with 67 illustrations, many in colour, and eight text figures. Price: 16s.

[2] "Annual Review of Medicine", edited by Windsor C. Cutting and Henry W. Newman; 1952. Volume III. Stanford, California: Annual Reviews, Incorporated. 9" × 6¼" pp. 452. Price: $6.00.

[3] "The 1951 Year Book of Endocrinology (January, 1951-January, 1952)", edited by Gilbert S. Gordan, M.D., Ph.D.; 1952. Chicago: The Year Book Publishers, Incorporated. 8" × 5¼", pp. 416, with 102 illustrations. Price: $5.00.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Gastrointestinal X-Ray Diagnosis", by Max Ritvo, M.D., and I. A. Shauffer, M.D.; 1952. Philadelphia: Lea and Febiger. Sydney: Angus and Robertson, Limited. 10" × 7½", pp. 838, with 470 illustrations, two in colour. Price: £10 15s.

The purpose of the authors is "to describe and discuss the lesions of the gastro-intestinal tract and its related viscera which can be diagnosed by roentgen examination".

"Engineering in Public Health", by Harold E. Babbitt; First Edition; 1952. New York: McGraw-Hill Book Company, Incorporated. 9" × 6½", pp. 594, with 53 text figures. Price: 68s.

Intended primarily for the professional engineer practising in the field of public health.

"Survey of Compounds which Have Been Tested for Carcinogenic Activity", by Jonathan L. Hartwell; Second Edition; 1951. Public Health Service Publication No. 149. United States Government Printing Office, Washington. 9½" × 11½", pp. 586. Price: $4.25.

Covers the literature up to and including 1947.

"Renal Function: Transactions of the Third Conference, October 18-19, 1951, New York", edited by Stanley E. Bradley; 1952. Josiah Macy Junior Foundation. 9" × 6½", pp. 210, with 80 illustrations. Price: $3.50.

Contains papers and discussion on the passage of substances across capillary walls, possible mechanisms of production of glomerular fluid, intrarenal pressure and renal blood flow, physical factors in relation to electrolyte and water excretion, the use of the artificial kidney, tubular secretion of potassium and acid, and enzymatic processes in tubular secretory transport.

"Adrenal Cortex: Transactions of the Third Conference, November 15-16, 1951, New York", edited by Elaine P. Ralli; 1952. Josiah Macy Junior Foundation. 9" × 6½", pp. 204, with 58 illustrations. Price: $3.25.

Contains papers and discussions on the effects of adrenal cortical hormones on renal function, the hypothalmus and regulation of ACTH secretion, the determination of adrenal cortical steroids in blood, the biogenesis of adrenal cortical steroids and the clinical use of adrenal cortical hormones and ACTH.

"CIBA Foundation Colloquia on Endocrinology: Steroid Metabolism and Estimation", edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., assisted by Margaret P. Cameron, M.A., A.B.L.S.; Volume II; 1952. London: J and A. Churchill, Limited. 8" × 5½", pp. 444, with 96 illustrations. Price: 35s.

The proceedings of two conferences, one on the estimation of steroid hormones, the other on the metabolic breakdown of steroids.

"Bibliography of the Published Writings of Sir Almroth E. Wright, M.D., F.R.S.", compiled by Leonard Colebrook, F.R.S.; 1952. London: William Heinemann (Medical Books), Limited. 10" × 6½", pp. 32, with one illustration. Price: 6s.

A list of published writings with brief notes on each.

The Medical Journal of Australia

SATURDAY, OCTOBER 25, 1952.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: surname of author, initials of author, year, full title of article, name of journal without abbreviation, volume, number of first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

THE CHAIRS OF PATHOLOGY AND BACTERIOLOGY AT THE UNIVERSITY OF SYDNEY.

THE Faculty of Medicine of the University of Sydney has recently lost by retirement two of its professors—W. Keith Inglis from the chair of pathology and H. K. Ward from the chair of bacteriology. One of the most responsible tasks which the governing body of any university has to undertake is the appointment of its professorial staff, and this is probably truer of medicine than of most other faculties. Any teacher should, of course, be master of his subject and also be able to impart his knowledge to his students, but in medicine no subject must be taught as a self-contained whole. The subjects dovetail into one another to a remarkable degree, and proficiency in one is not to be attained without some insight into several others. The scientific method has to be taught and demonstrated and the germination of scientific thought in the student's mind encouraged. And all this has to be done in a kind of enveloping aura emanating from the understanding of human nature. The "good" doctor must display a blending of science and humanity, being able to draw on each as he needs them, like an organist drawing on his stops. A great deal depends on what kind of man the teacher is, and no more than that need at present be said. All who are in a position to have any knowledge of the real state of medical education in New South Wales will agree that the Senate of the University of Sydney showed its wisdom in 1935, when it appointed H. K. Ward to the chair of bacteriology, and in 1936, when it made W. K. Inglis its professor of pathology. At this stage it is fitting that some record should be made in this journal of their services to medicine.

Professor Inglis brought to the chair of pathology a wealth of experience in pathology and in teaching of the subject. He had been lecturer in pathology in the University of Sydney during the professorship of the late David Arthur Welsh and had superintended the establishment of the Kanematsu Institute at Sydney Hospital and had been its first director. He was director of pathology at Sydney Hospital when the Kanematsu Institute was endowed, and he brought enthusiasm and discrimination to its planning and construction. Perusal of the pages of this journal over the years will reveal some of his contributions to the literature of pathology. He wrote sparingly, holding that he should not put pen to paper unless he could make an observation which was original and worth while. The subject to which he devoted most attention was Paget's disease of the nipple, and his book on the condition is recognized as an authoritative and standard work. His teaching was characterized by meticulous and logical planning; he took his students with infinite care over the macroscopic and microscopic details of the valuable specimens which he had collected over the years. It was no fault of his if a student could not recognize an abnormal structure when he saw it. In his department he gave to many young graduates a useful grounding in pathology before they took up the special study of other aspects of medicine; and he trained others who later on took up pathology as their life's work. That he did not, however, live in a groove is shown by his Halford Oration on "Medical Men and Books", published in this journal on January 27, 1940. During World War I Professor Inglis served in France with the Australian Army Medical Corps (it was not then "Royal"), and the cheerfulness and spontaneity with which he carried out the routine duties of hospital pathologist were not only a comfort but a stimulus to the officers among whom he was stationed. During the Second World War he was President of the New South Wales Branch of the British Medical Association during 1940-1941, when difficulty was being experienced in the provision of medical services for the civil population; he was a "strong" president and helped to ease the burden which inevitably fell on the Association. Professor Inglis's attitude to his own subject and through it to most other matters may well be summed up by a quotation from his president's address to the Branch in 1940:

> The spirit of science is elusive and light as thistledown; it is not to be hunted with a bludgeon, it is to be wooed as a poet's muse. Should it find its way into the scientific departments of an institution, there is no limit to the influence it may have. The spirit ennobles as no baser passion can, and its light touch may transform the laboured efforts of routine service into a life dedicated to that noblest of all quests, the search after truth for its own sake.

When H. K. Ward accepted the chair of bacteriology in 1935 as second Bosch Professor, he had already acquired an international reputation as an investigator. His research work had been carried out overseas. He graduated at the University of Sydney and subsequently went to Oxford as Rhodes Scholar for New South Wales. The First World War came soon afterwards and he joined the Royal Army Medical Corps and was decorated three times, with the Military Cross and two bars. Subsequently he became a Rockefeller Fellow in 1923, and from 1924 to 1926 he worked in the department of bacteriology at the University of Oxford. From 1926 to 1934 he was assistant professor of bacteriology at the University of Harvard. It is not to be wondered at that with such a background he created a department of distinction and significance, where intellectual honesty was the first requisite, where thoroughness

was demanded, and where inspiration came from example and not from precept. We know that in such surroundings precept takes an insignificant place, being ousted by inquiry, eagerness and zeal. Students in these circumstances become scholars and not technicians. Professor Ward holds significant views on medical education—it would be surprising if he did not. He attaches great importance to the value of investigational work as a prelude to the practice of clinical medicine. But to pursue this further in this place would be to anticipate a contribution which Professor Ward is making to an Education Number of this journal shortly to be published. Professor Ward's knowledge of and insight into research have been used for the benefit of the whole scientific work of the Commonwealth by his appointment to committees of the National Health and Medical Research Council. It is to be hoped that his retirement from the chair of bacteriology will not mean his withdrawal from this body; there seems to be no reason why it should. The same statement holds in regard to his membership of the Council of the National University at Canberra.

While we assure Professor Inglis and Professor Ward of the appreciation and good will of their colleagues, we would express the hope that they will still find congenial spheres of useful activity. We welcome their successors and congratulate them on opportunities which they will find awaiting them. Dr. P. M. de Burgh, senior lecturer in bacteriology at the University of Sydney, has succeeded Professor Ward; and Dr. F. R. Magarey, formerly of Adelaide, and now senior lecturer in pathology at the Welsh National School of Medicine, Cardiff, Wales, has been appointed to the chair of pathology.

Current Comment.

"DARAPRIM": A NEW ANTIMALARIAL DRUG.

A NEW antimalarial drug of some promise, "Daraprim", was discussed at a meeting of the Royal Society of Tropical Medicine and Hygiene on July 17, 1952.[1] G. H. Hitchings described the biochemical properties of the diaminopyrimidines, of which "Daraprim" is a selected member. He said that experiments had suggested that the antimalarial activity of "Daraprim" was probably associated with its activity as an antimetabolite of the folic acid series of vitamins and that the drug might be regarded as a structural analogue of folinic acid of a rather remote sort, particularly well adapted to displacement of the metabolite from its apoenzyme in the malaria parasite. Various speakers described clinical trial of the drug in various parts of the world. Notable failure was reported from Malaya, especially against the Malayan strain of *Plasmodium falciparum*, but in most places very satisfactory suppressant results had been achieved as well as favourable results in the treatment of overt attacks of various types of malaria. A useful feature of the drug mentioned, especially for mass suppression and for the treatment of infants, was its lack of taste. Toxicity was apparently not of importance; though toxic effects had been produced experimentally in monkeys, the recommended therapeutic and suppressive doses were less than a hundredth of the amount needed to produce toxic symptoms in the monkey. The reports, which came from many quarters, were in some respects conflicting, but Sir Neil Hamilton Fairley, who was in the chair, drew attention to "the well-known but oft-forgotten fact that different races of the malaria parasite vary greatly in their response to different drugs". His summing-up was to the effect that neither "Daraprim" nor proguanil (with which "Daraprim" has certain comparable features) was altogether suitable for the treatment of overt malaria and that their most important role was as suppressants. Apart from anything else "Daraprim" may be cited as an interesting example of the patience of modern drug research; the diaminopyrimidines were investigated as possible antimalarials because of a structural analogy between members of the series and proguanil, as well as certain similarities of microbiological behaviour, and "Daraprim" was selected for clinical trial from some 300 members of the series studied.

[1] *The Lancet*, July 26, 1952.

DISSECTING ANEURYSM OF THE AORTA.

SO-CALLED dissecting aneurysm of the aorta, in which blood forces its way along between the inner and middle coats or between layers of the middle coat of the aorta, and eventually escapes through a rupture outward or inward, may be accused, in some cases at least, of carrying the name "aneurysm" mainly by courtesy. However, the term has been in use since Laennec first applied it early in the last century, and it has descriptive validity in many cases; so it is probably here to stay. The pathogenesis of the condition is not yet generally agreed upon. The findings in various small series have brought conflicting conclusions. For this reason the material presented earlier this year by I. Gore and V. J. Seiwert[1] in a report of an unusually large series is of special interest. The cases in the series, which were collected at the Armed Forces Institute of Pathology in Washington, numbered 85. Gore and Seiwert state that the gross pathological features of the lesions were identical with those recounted in numerous descriptions in the literature. There was preponderant involvement of the proximal segments of the aorta. External rupture of the aorta with fatal hæmorrhage was the usual cause of death, but there were 16 cases in which it did not occur. In 11 instances the dissection had become rechannelled, and in six others there were no intimal breaks or tears. In seven cases a true aneurysmal swelling of the proximal part of the aorta had preceded the terminal dissection. Microscopically, a degenerative process was demonstrated in the aortic media in all cases, and it was impossible to distinguish between so-called spontaneous rupture and the more usual type of dissecting aneurysm. The elastic laminæ were affected primarily in the younger individuals. In the older age groups the changes were predominantly in smooth muscle. Lesions of both types were present at intermediate ages, but were not always coextensive; thus the two processes were regarded as independent, possibly entailing different ætiological mechanisms. However, in all cases the weakened area in the aortic wall contained increased numbers of thin-walled vasa and a slight but variable inflammatory reaction. Basophilic-staining material, actually myxomatous tissue, was frequently abundant in degeneration of the elastic type. These features, together with a frequent productive adventitial reaction which antedated the hæmorrhage, were regarded as constituting the reparative reaction to the initial medial degeneration.

Gore and Seiwert state that an unusually high incidence of developmental anomalies in the younger age groups pointed to a congenital factor in this form of the disease at least. They suggest that changes accompanying senescence may explain others, but point out that in either event it seems likely that a biochemical or a metabolic defect preceded the morphological one. If this supposition can be confirmed, they continue, the reason for the greater frequency of lesions in proximal segments of the aorta becomes apparent. It is not so much a matter of the "chain breaking at the weakest link" as it is of disproportion in the load to which each link is subject. Mechanical factors are probably influential too, in initiating the intramural hæmor-

[1] *A.M.A. Archives of Pathology*, February, 1952.

rhage and the secondary intimal tear. Gore and Seiwert consider that intimal disease, much stressed by earlier writers, plays no appreciable role in this condition. They assign an important secondary role to hypertension.

In a separate paper in the same journal Gore develops his views on pathogenesis, based on histological studies of the aorta in 72 cases of the same series. Medial degeneration was present in every case, although it varied considerably in extent and severity, and Gore points out that there is general agreement that medial degeneration is essential to the pathogenesis of dissecting aortic aneurysm, though it does not invariably lead to dissection. Opinion is much less unanimous regarding the initial event which leads to exploitation of the weakness of the aortic wall. As evidence that the primary hæmorrhage is intramural, Gore cites 23 cases in which intimal breaks were absent; he states that microscopic alterations occurring within the aorta lend credence to this view and serve to explain it. Associated with the degeneration of the muscular or elastic laminæ of the media is an inadequate reparative reaction characterized by an increase in the number of vasa, a mild inflammatory infiltration and the appearance of variable quantities of myxomatous tissue. In contrast to the vascular features of syphilitic aortitis, the vasa are thin-walled and widely patent, and are supported only by considerably weakened media. It is not difficult to appreciate that, as Gore points out, the capacity of such vessels to rupture helps to explain the frequency with which hypertension is associated with dissecting aneurysm of the aorta.

THE CLINICAL VALUE OF THE VITAL CAPACITY.

In 1846 John Hutchinson[1] published a paper which was to remain the standard reference on its subject for almost three-quarters of a century. It was entitled, after the fashion of the day, "On the Capacity of the Lungs, and on the Respiratory Movements, with the View of Establishing a Precise and Easy Method of Detecting Disease by the Spirometer". Although Hutchinson's hopes have not been entirely fulfilled, the work is still well worth reading as an example of a well-conducted clinical investigation based on simple, but thorough, methods of observation and experiment. In more recent times doubt has been thrown on the value of estimation of the vital capacity, chiefly because of the range of normal variation from predicted values based on surface area, chest circumference or height and because of its failure to show a close relation to the exercise tolerance or degree of dyspnœa. Further uncertainty has resulted from the introduction of more elaborate methods of assessing ventilatory function, such as mixing studies, from which more detailed information may be derived. It may be noted that variations in the same individual from time to time may be minimized by the adoption of a rigorously standardized procedure, particularly as regards posture, by recording the highest of three consecutive readings, and by correcting gaseous volumes to standard temperature and pressure. To both observer and patient the great advantage of vital capacity measurement is the simplicity and speed of its estimation. It therefore becomes of practical importance to define its place in the investigation and management of pulmonary and cardiac disease, and to incorporate any modifications which will enhance its value.

Two recent papers by W. A. Briscoe and G. A. McLemore, junior, and by M. C. S. Kennedy and J. P. P. Stock bear directly on these problems.[2] Briscoe and McLemore found that in any individual subject changes in the more elaborate ventilatory function tests were reflected in vital capacity determinations, although these were not necessarily related to the degree of disability. They concluded that the vital capacity was the simplest and most reliable single test "as an index of change of ventilatory function at serial studies in any one patient". In this regard, J. H. Comroe, junior,[3] states that a variation of 220 cubic centimetres is probably significant. A significant improvement in the vital capacity as a response to drug therapy (for example, with adrenaline) may serve as an indication of functional change, as opposed to permanent structural changes, according to R. D. Berke *et alii*.[1] In common with Berke *et alii*, Briscoe and McLemore point out that some subjects, including many asthmatic patients, are unable to cooperate in more exacting tests, such as the minute volume or maximum breathing capacity. Kennedy and Stock introduced a time factor into the estimation of the vital capacity and observed that the maximum breathing capacity could be predicted from the first steep fraction of the expiratory phase of a single vital capacity spirometer tracing. One-half of the maximal expiratory flow rate measured over 0·75 second of the expiratory phase, in litres per minute, correlated closely with the observed maximum breathing capacity, the mean of six readings forming a stable measure with a standard error of ±5%. As the maximum expiratory rate is related to factors other than lung capacity—bronchial diameter, for example—an estimation of the vital capacity with a fast-moving kymograph (one centimetre per second is suggested) allows a more comprehensive appreciation of pulmonary ventilatory function.

It may be concluded that, with careful attention to standardization of technique, the vital capacity is a useful objective index of the progress of a patient with pulmonary insufficiency, particularly if a time element is introduced. In effect, as with so many special investigations, its value is related to the reason for which it is requested.

[1] *Medico-Chirurgical Society Transactions*, Volume XXIX, 1846, page 137.

[2] *Thorax*, March 7, 1952.

[3] *The American Journal of Medicine*, March, 1951.

TUMOURS OF THE LARGE BOWEL.

The great need for more frequent rectal examination of general patients and for more thorough proctoscopic, sigmoidoscopic and radiological examination of all patients with rectal or colonic symptoms receives stimulus from an analysis of recent articles by R. J. Jackman and C. W. Mayo,[2] and by W. R. Sandusky and J. R. Parsons.[3] Jackman and Mayo discuss the adenoma-carcinoma sequence in colonic cancer. They report that in a series of 1000 adults of the age group thirty to seventy years, with no symptoms suggestive of large bowel disease, sigmoidoscopic examination revealed polypi in 12% of the patients examined and in a small percentage early frank carcinoma was found. Sandusky and Parsons report their observations on 202 patients with polypi of the large bowel, of whom 46 had associated malignant changes; 18 had early carcinomatous change in a polypus, and 28 had coexistent carcinoma of the large bowel. Eighty-two patients had no symptoms, or a satisfactory explanation for symptoms could be made on the basis of minor ano-rectal abnormality. For many years the relationship between adenomatous polypi and carcinoma of the colon and rectum has been realized; the transition from innocence to malignancy was clearly demonstrated in 1926 by Cuthbert Dukes.[4] It is obvious that early diagnosis of rectal polypi remains one of the most beneficial results of careful examination and early therapy a practical step in cancer prevention. Some 70% to 80% of polypi occur in a field which can be seen and in most cases treated per sigmoidoscope. It is advised that these should be removed by fulguration or excision and that sigmoidoscopic and radiological examination should be repeated at least annually. For lesions beyond the reach of the sigmoidoscope there remains the choice of colotomy with removal of the polypus or limited colectomy. C. E. Welch[5] points out that the mortality of the two operations shows no significant difference, and he therefore advises partial colectomy with removal of a deep wedge of mesocolon. Then if the lesion is proven to be cancerous, it can be felt that an adequate operation has been performed.

[1] *The Journal of Allergy*, March, 1952.

[2] *Surgery, Gynecology and Obstetrics*, September, 1951.

[3] *Annals of Surgery*, June, 1952.

[4] *The British Journal of Surgery*, April, 1926.

[5] *Surgery, Gynecology and Obstetrics*, September, 1951.

Abstracts from Medical Literature.

PHYSIOLOGY.

Oxygen Consumption of Rats during Partial Inanition.

C. W. CRAVEN (*The American Journal of Physiology*, December, 1951) states that it has been reported from several laboratories that rats maintained on a carrot diet for ten days survived longer at high altitude than control animals did. The oxygen consumption of young male rats receiving a normal diet was determined by the closed-circuit technique. The rats were so trained that activity was minimal. After the rats were maintained on an exclusive diet of raw carrots and tap water, *ad libitum*, for ten days, the body weight had decreased by 14% and the oxygen consumption was 22% below the normal value. This decrease was statistically significant. With resumption of the normal diet, body weight and oxygen consumption returned to approximately normal. The author concludes that the increased resistance to altitude of rats receiving an exclusive carrot diet can be attributed, in large part, to their decreased oxygen requirement.

Citrate Lithiasis in the Rat.

P. G. MORRIS AND H. STEENBOCK (*The American Journal of Physiology*, December, 1951) report experiments to explain the effect of cereal grain diets of high calcium content in producing urinary lithiasis, as occurs in certain parts of India. They state that urinary lithiasis was produced in a large number of young rats by feeding them rations of low phosphorus and approximately normal calcium content. The frequency of its occurrence was increased by feeding sodium bicarbonate or potentially alkaline salts. On the other hand, it was entirely prevented by the feeding of adequate amounts of phosphate. As produced on the basal ration of low phosphorus and adequate calcium content, the calculi consisted largely of calcium citrate, but with the feeding of additional alkali their citric acid content was reduced, their calcium content was increased, and carbonate and phosphate appeared as additional constituents.

Inactivation of the Frog Sperm Nucleus by Toluidine Blue.

R. BRIGGS (*The Journal of General Physiology*, May, 1952) states that toluidine blue, applied to frog sperm under appropriate conditions, inactivates specifically the sperm nucleus, leaving the extranuclear parts of the cell undamaged. Thus the dye-treated spermatozoa stimulate eggs to cleave normally, but contribute no chromosomes to the resulting embryos, which develop as typical gynogenetic haploids. Microscopic observations of sperm treated with dye show that the dye is taken up by the sperm nucleus, which is faintly but definitely stained. The dye appears to be uniformly distributed in the nucleus, while extranuclear structures remain unstained. Measurements of the amount of dye bound per sperm nucleus suggest that there are roughly four million binding sites in the nucleus which, when blocked by dye molecules, somehow prevent the sperm chromosomes from participating in the development of the egg. The author states that since this paper was submitted for publication K. Drebinger has reported that basic dyes which damage the sperm nucleus in the presence of diffuse daylight, fail to do so in the dark. The author has confirmed this result, finding in one experiment that when sperm cells were exposed to toluidine blue in the dark no inactivation of the sperm nuclei occurred. In another experiment sperm cells were exposed to toluidine blue for twenty-five minutes and then washed free of dye, all operations being carried out in the dark or in red light. At this point the nuclei were still unaffected by the dye. The sperm cells were then exposed to the type of diffuse light used in all the experiments—a mixture of northern daylight and fluorescent ceiling light. Within eleven minutes the majority of the sperm nuclei were completely inactivated. The author concludes from this that the dye enters the sperm head in fully effective amounts in the dark, but that no reaction occurs between the dye and the contents of the sperm nucleus until the sperm cells are exposed to light.

Protein or Carbohydrate Feeding After Prolonged Fasting.

C. M. WILHELMJ, T. F. MCGUIRE AND E. B. WALDMANN (*The American Journal of Physiology*, April, 1952) state that haphazard realimentation of severely undernourished prisoners of war and members of civilian populations may constitute a major stress often endangering life. They report that feeding of dogs with high Calorie diets after prolonged fasting constitutes a severe cardio-vascular, gastro-intestinal and general stress which is most pronounced with diets of high carbohydrate content. From the present studies, it appears that realimentation following severe inanition should be started with small amounts of easily digested protein, the quantity being increased very gradually. The increase in pulse rate and blood pressure during refeeding may constitute a very valuable index of the margin of safety in increasing the caloric intake.

Partial Sterilization Caused by Feeding Sulphaguanidine to Rats.

P. V. ROGERS (*The American Journal of Physiology*, April, 1952) states that sulphaguanidine fed to pregnant and lactating rats for four consecutive generations resulted in a 95% decrease in the number of offspring born. Food intake and activity also became subnormal. Both sexes were affected, although the males suffered more than the females. Injections of testosterone and thyroxine failed to bring these males back to normal. Fertility in the colony returned to normal in the first generation after the sulphaguanidine treatment had been discontinued. Larger amounts of this drug given for a relatively short time had a similar effect upon fertility. Twenty-three pairs of animals produced an average of 3·2 rats per litter, compared with 9·9 for the control animals receiving no sulphaguanidine. A comparison of the number of implantation sites on the seventh day of pregnancy with the offspring actually born showed only a normal loss through absorption or abortion. There was tremendous hyperplasia of the thyroid gland in all animals receiving the larger amounts of sulphaguanidine. Administration of desiccated thyroid in addition to the sulphaguanidine prevented this enlargement, but failed to increase the number of offspring produced. Brewer's yeast had no effect in increasing the fertility. It may be concluded that the administration of sulphaguanidine to pregnant and lactating rats will after four generations cause almost complete sterilization of the colony. The feeding of comparatively large amounts of sulphaguanidine to normal rats for thirty days prior to mating will also cause a great decrease in the number of offspring.

BIOCHEMISTRY.

Cobalt.

I. ROSENFELD AND C. TOBIAS (*The Journal of Biological Chemistry*, July, 1951) have studied the uptake of Co^{60}, Cu^{64} and Zn^{65} in liver, spleen, kidney and tumour of normal and tumour-bearing animals as a function of time. Some cobalt and copper were found in the nuclear fraction of tissues, particularly liver and tumour tissue. Zinc was also found there, but in rather small concentration. In each case cytoplasmic concentrations of the trace elements were higher than nuclear concentrations. The presence of tumour tissue altered the cobalt and copper metabolism of the animals. In the case of cobalt there was a higher uptake in the liver, a high uptake by tumour cytoplasm and nuclei, and a low concentration in kidney. There was an increased concentration of copper in the liver and spleen and also a rapid uptake by the tumour. Separation of the cytoplasmic proteins containing the isotopes Co^{60} and Zn^{65} indicates that 1% or less of the injected dose of those isotopes was bound firmly with the proteins. Most of the cobalt and zinc was present in the acid-soluble fraction.

Pyridoxine.

H. S. GLAZER *et alii* (*Archives of Biochemistry*, September, 1951) have shown that human subjects given desoxypyridoxine, a pyridoxine antagonist, excrete large quantities of xanthurenic acid after test doses of tryptophane. Xanthurenic acid excretion does not increase in normal subjects or those given desoxypyridoxine together with pyridoxine when they receive test doses of tryptophane. The data support the proposition that skin and mucous membrane lesions which appear in humans after administration of desoxypyridoxine, and disappear when pyridoxine is given, are manifestations of pyridoxine deprivation.

Muscular Dystrophy.

R. S. MELVILLE AND J. P. HUMMEL (*The Journal of Biological Chemistry*, July, 1951) have studied the excretion of creatine and glycocyamine and their concentration in liver, kidney, muscle and blood during the progressive development of the paralysis produced in young rabbits receiving a diet deficient in vitamin *E*. Creatinuria and the loss of creatine from muscle tissue precede the external signs of paralysis and any observable histological changes.

Most of the ultimate loss of creatine occurs before evidences of tissue damage appear. Simultaneously, the amounts of creatine in liver, kidney and blood increase; the liver contains five times and kidney and blood contain four times that of control animals receiving the same diet *plus* tocopherol. Glycocyamine undergoes remarkably small alterations; its synthesis, if confined to the kidney, appears to be governed by the rate at which creatine is being made in the liver.

Cortisone.

W. UMBREIT AND N. TONHAZY (*The Journal of Biological Chemistry*, July, 1951) have reported on some metabolic effects of cortisone. They state that after adrenalectomy, the ability of kidney homogenates to oxidize proline is decreased. This ability is restored to normal by cortisone treatment. The decreased proline oxidation is evident two or three days after adrenalectomy. The proline system may be restored by cortisone treatment, but as much as a week of continued treatment is necessary. The amount of cortisone required for maintenance of the proline system is 0·5 milligramme daily. Treatment of the adrenalectomized animal with desoxycorticosterone did not maintain proline oxidase activity; treatment with cortisone or whole adrenal extract did. The differences in proline oxidation are evident in tissue slices as well as in homogenates. Various vitamin deficiencies did not decrease kidney proline oxidase. The effect observed seems to be peculiar to the kidney and is not evident in a comparison with liver proline oxidation. After adrenalectomy there is also an increase in factors causing destruction of metabolic activity in isotonic homogenates of kidney. These destructive factors may be counteracted by increasing the addition of adenylate to such homogenates or by addition of sodium fluoride. When this is done, the oxidation of glutamate, α-keto-glutarate, succinate, fumarate and citrate is uninfluenced by adrenalectomy or treatment with cortisone, but the oxidation of proline remains at a lowered level after adrenalectomy.

M. LIPSETT AND F. MOORE (*The Journal of Biological Chemistry*, October, 1951) have demonstrated that accumulation of carbohydrate and ketone bodies in surviving liver slices from fasted mice is greatly reduced by adrenalectomy. The administration of cortisone to fasting adrenalectomized animals raises the increases in carbohydrate and ketone bodies in tissues from such animals to or above the levels for intact animals. It also increases the water content of the liver and the Q_{O_2} above levels observed in normal fasting livers. The time-response curve of fasted adrenalectomized animals given 0·1 milligramme of cortisone acetate was determined. Measurements were made *in vitro* of Q_{O_2} carbohydrate and ketone bodies, in addition to the wet-dry ratio of the tissue. The maximal response occurred approximately six hours after injection. A high degree of correlation was noted between the wet-dry ratio and Q_{O_2}.

Growth.

J. B. WEIR (*The British Journal of Nutrition*, Number 1, 1952) has compared graphically and analytically published data of heights and weights of schoolboys in London and Glasgow during the present century. In some forty years the average height of London schoolboys has increased by about three inches and the average weight by about nine pounds. The Glasgow figures are similar. The author has developed a concept of growth age and body build. The principal conclusion is that school children of today are growing faster than children of previous generations. As a result of the accelerated growth adult stature is earlier attained but not necessarily increased. The indices of growth may be of value as indices of nutrition.

Vitamin B_{12}.

B. F. CHOW *et alii* (*Archives of Biochemistry and Biophysics*, November, 1951) have administered vitamin B_{12} containing radioactive Co^{60} to a group of pregnant rats, and determined the radioactivity in placenta, amniotic fluid and fœtus, as well as in the organs of newborn and mothers. The results demonstrated its presence in small but analytically significant amounts (approximately 0·2% of the administered activity) in liver and kidneys, in even lesser amounts in intestines and in analytically insignificant amounts in spleen and heart of mother rats. At the time of necropsy of the newborn a considerably larger amount (1% to 2% of the administered dose) of radioactivity was found in their carcasses. As much as 18% of the administered radioactivity was found in all fœtuses and placentæ, but no activity was detected in the amniotic fluid.

Iron.

L. M. SHARPE *et alii* (*Archives of Biochemistry and Biophysics*, February, 1952) have demonstrated that iron, as iron ammonium citrate, added to duck blood is taken up to an appreciable extent by the erythrocytes during incubation at 37° C. Uptake at 3° C. is much less than at the higher temperature. Cyanide, but not carbon monoxide, depresses the uptake. Some of the iron entering the cells is recoverable as hæmin. Synthesis of hæm by the cells accounts for the recovery of the added iron as hæmin. The uptake also occurs in pigeon, rat, dog and human blood.

Calcium Absorption.

B. B. MIGICOVSKY AND A. M. NIELSON (*Archives of Biochemistry and Biophysics*, November, 1951) have shown that the amount of Ca^{45} appearing in the tibiæ of chickens after an intramuscular injection of Ca^{45} was directly proportional to the quantity injected. Administration of vitamin *D* slightly decreased the quantity of Ca^{45} appearing in the bone. The proportion of an oral dose of Ca^{45} which appeared in the tibia after a definite period of time was used as an estimate of the rate of absorption; this was a sensitive criterion of response to vitamin *D* treatment. The presence of excess phosphate in the gut did not interfere with calcium absorption. Vitamin *D* affected the absorption of calcium within the first half-hour after the initial administration of calcium.

Sulphate Excretion.

N. B. EVERETT AND B. S. SIMMONS (*Archives of Biochemistry and Biophysics*, January, 1952) have shown that rats with bile fistulæ given S^{35} sodium sulphate intravenously, excreted 89% of the injected sulphur within twenty-four hours. Of the sulphur 75% was recovered in the urine, 10% in the bile and 4% in the fæces. Determinations for sulphur were made on segments of the gastro-intestinal tract at intervals after injections. The results reveal that in the animals with bile fistulæ sulphur enters the upper third of the small intestine and moves through the intestines to be eliminated in the fæces. The suggestion is made that sulphate passes directly from the blood or tissue fluid into the upper part of the small intestine.

Salicylate.

M. J. H. SMITH AND B. W. MEADE (*The Biochemical Journal*, April, 1952) have shown that salicylate reduces the glycosuria and blood glucose content in the diabetic rat, but causes no change in the liver glycogen content. In the normal rat salicylate causes no alteration in the blood glucose content, but a depression of the liver glycogen content.

Uric Acid.

E. A. JOHNSON (*The Biochemical Journal*, April, 1952) has isolated substituted uric acids from the urine of a human subject receiving a normal diet. Results indicate that these are methyl uric acids substituted in the 7, 1 and 1:7 positions. They have been shown to be metabolic products of exogenous methylxanthines, that is, caffeine, theobromine or theophylline.

Brain Metabolism.

H. MCILWAIN (*The Biochemical Journal*, August, 1951) has devised methods, using modified manometric apparatus, which enable electric stimuli to be applied to thin slices of brain tissue under good metabolic conditions. The application for some hours of alternating currents of up to three volts or of brief condenser discharges of up to 30 volts several times per second between electrodes two to ten millimetres apart caused in the apparatus no changes which might be mistaken for metabolic responses. When current was applied to electrodes in contact with brain-cortex slices, the respiration of the slices increased. Values up to double those of the initial respiration were observed. The increased respiration could be maintained for some hours, and in a given experimental arrangement it increased with increase in the voltage applied, when this was above a threshold value.

H. MCILWAIN *et alii* (*ibidem*, November, 1951) have shown that the changing potential gradiants which increase the respiration of slices of cerebral cortex, increase also its rate of utilization of added glucose and its rate of formation of lactic acid. Respiration and lactic acid formation account to within 6% for the glucose lost, during stimulation as well as in its absence. The formation of lactic acid, aerobically, can rise from between 15 and 40 to 100 μmol. per gramme per hour. The change takes place as promptly as can be detected by the methods employed, that is, within two minutes. It can be maintained for an hour or more. Response to stimulation *in vitro* is thus in the same direction as in the brain *in situ*; it can be maintained much longer, but does not reach rates equal to those which appear to occur during the first few seconds after stimuli are applied *in vivo*.

Medical Societies.

THE MEDICAL SCIENCES CLUB OF SOUTH AUSTRALIA.

A MEETING of the Medical Sciences Club of South Australia was held in the Anatomy Theatre, New Medical School, Frome Road, Adelaide, on August 1, 1952.

Polarized Segregation in an Ascomycete.

DR. M. J. MATHIESON presented a communication on polarized segregation in an Ascomycete. He said that random orientation of chromosomes on the spindle at metaphase and subsequent separation at anaphase was the underlying assumption of Mendel's law of random assortment, in terms of chromosomes. Deviations from ratios of different types of progeny predicted on that assumption might be due to differential viability of gametes, the Renner effect, or a non-random arrangement of chromosomes. The last-mentioned was difficult to detect except in organisms in which all products of a meiosis were recovered, in a linear order.

Certain Ascomycetes fulfilled the conditions, and particularly *Bombardia lunata*, in which mutants existed which affected the colour of the ascospores and segregation could be observed directly in the ascus without dissection of spores. Professor Catcheside in 1944 had analysed data published by Zickler ten years earlier on the segregation of the mutant gene *rubiginosa*, which caused the ascospores to be buff-coloured instead of dark green. He had shown that the segregation was biased, there being a tendency for the wild type spores to segregate to the uppermost pole of the spindle at the two meiotic divisions. Zickler's cultures had been obtained from Germany, and a subsequent analysis had shown that with improved methods of scoring, there was still a bias on the first division spindle, but it was considerably reduced in magnitude. Those on the second division spindles were reversed and must be of different origin from that at the first division, since subsequent to that division the nuclear behaviour was such that order was not preserved.

Dr. Mathieson went on to say that in a certain strain of maize, Rhoades had shown that the presence of heterochromatin caused preferential segregation of the chromosome carrying it. Such a possibility could be tested in *Bombardia* by utilizing certain rare asci in which there were six of one type of spore and two of the other, the deficiency being the result of a mutation taking place during meiosis. Such asci when crossed to wild type or *rubiginosa* gave rise to progeny in which the bias still existed. The biased segregation would not appear to be due to such a chromosomal difference. A possible explanation was that a certain arrangement of spores in the ascus could be recognized earlier than another, giving rise to an apparent inequality in the two types.

Poliomyelitis.

DR. H. W. LINN made brief mention of the various types of poliomyelitis, subclinical, abortive, meningitic and paralytic, and went on to ask what factors predisposed to paralytic poliomyelitis. He said that, first, the physiological condition of the host at the time virus was introduced was of great importance and in that connexion mentioned tonsillectomy, inoculations, fatigue and fractures. Second, Bodian had noticed that the strain of virus involved played a most important part in determining the site of paralysis.

Turning to the question of prevention of poliomyelitis, Dr. Linn said that combined teamwork in the United States of America had so far examined over 100 different strains of poliomyelitis virus. Up to date all fell into three immunological groups. Enders had succeeded in growing poliomyelitis virus in non-nervous tissue culture, so that large quantities of suspensions of virus of low pathogenicity could be produced. Those facts were of great importance for the production of a vaccine in the near future. Dr. Linn also made mention of the search for a suitable therapeutic agent.

The Site of Oxygen Usage under Basal Conditions.

MR. E. W. LINES said that Drabkin in 1950 had reported the oxygen consumption of the heart, liver, kidneys and brain of a 70 kilogram man under basal conditions, and had shown that those accounted for 70% of the total. The amounts of oxygen needed by the first three organs to carry out their work for the rest of the body could be shown to be more than 90% of their total usage. The 37·5 calories of work done by the heart on the blood amounted to 21% of the total calories, which was near the mechanical efficiency of muscular work. In the liver, to produce metabolites for use elsewhere by oxidizing fat to acetoacetate and converting protein would account for 92% of the oxygen used. Part of the energy from ketone formation might be available for effecting internal syntheses. In the kidneys, the osmotic work between plasma and urine was less than 1% of the energy used. However, as judged by urea clearance, some nine moles of salts from one-third of the glomerular filtrate were actively and selectively recovered by the tubules against the osmotic gradient, apparently by the formation of a transport chemical complex. To effect this, each mole actively transferred would need a quantum of energy donor, for example, of adenosine triphosphate. Active transport from plasma to filtrate, for example, of PAH, would have a similar cost per mole. Any factor raising the filtration rate (as water diuresis) and thus the amount of salts to be recovered, increased oxygen demand; reduction in final concentration (*diabetes insipidus*) would not. Each mole of salts actively transferred would allow passive diffusion of an isosmotic amount of water. Concentrating the residual 15% of filtrate to urine would involve few calories if done mechanically.

Mr. Lines said that no data were available on which to assess how much of the remaining 49% of the oxygen used by the brain, viscera and muscles was devoted to supplying the needs of other parts, and in effecting the repairs incidental thereto, but respiration, digestion, muscular tonus and maintenance of the senses each required its quota. Thus it seemed that almost all the basal energy was used by a machine which sustained some small but very steady key activity which had not been identified.

Correspondence.

THE TREATMENT OF HYPERTENSION.

SIR: Dr. McReady's letter published in THE MEDICAL JOURNAL OF AUSTRALIA of August 9 has just come to my attention, but he fails to shake my opinion based on personal experience. I would suggest that he extend his series of cases to include obese individuals with a raised pressure, in whom the variations are most marked, if the technique advised is not followed. These variations are slight in thin individuals with normal blood pressure.

If further authoritative support is required for the views given, I would refer to the recommendations of the American Heart Association and the Cardiac Society of Great Britain and Ireland, which bodies, having carefully studied the problems involved, stated, *inter alia*: "A standard sized cuff containing a rubber bag 12 to 13 cm. in width should be used. A completely deflated cuff should be applied snugly and evenly around the arm with the lower edge about one inch above the ante cubital space and with the rubber bag applied over the inner aspect of the arm. The cuff should be of such a type and applied in such a manner that inflation causes neither bulging nor displacement."

Yours, etc.,
J. G. HAYDEN.

55 Collins Street,
Melbourne,
September 29, 1952.

A REQUEST.

SIR: I should be very grateful if you could help me in an interesting matter. Some two years ago an Australian doctor attending the post-graduate class in internal medicine at the Royal Infirmary, Edinburgh, Scotland, told me of the existence in Australia of a spider, the venom of which is stated to have the property of producing hypertension. I checked this with the department of zoology and found that not a great deal was known about the venom, but the remark was probably true. I should perhaps add that my work is that of clinical tutor in the cardiology department, Royal Infirmary, Edinburgh, under Dr. A. Rae Gilchrist, and that I have been engaged in some work on hypertension for a few years. At the moment I am a Commonwealth Travelling Fellow in Medicine and shall be spending nine

months in this hospital. It has struck me that I had not taken any further active interest in the spider venom as there was not much time prior to coming here. Now I have the opportunity I have been trying to find out some more about it without a great deal of success. I think the name of the spider was *Atrax robusta*.

If you could put me in touch with someone who knows about the effect of the spider bite I should be most grateful; my chief interest lies in finding out the nature of the pressor substance in the venom, if known. I should very much like to obtain some of the actual venom for experimental use, although I realize that this may not be directly available and that collection may well be hazardous.

I do trust that this request will not cause any bother, and I shall await any information you may be able to supply with great interest.

Yours, etc.,

DONALD F. GIBBS.

Department of Internal Medicine,
Barnes Hospital,
600 South Kingshighway,
Saint Louis,
Missouri,
United States of America.

October 2, 1952.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Clinical Meeting at Balmoral Naval Hospital.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that a clinical meeting will be held at the Balmoral Naval Hospital on Tuesday, November 11, 1952, at 2 p.m., when Dr. R. Reader will speak on "Rheumatoid Arthritis". Clinical cases will be shown after the lecture. All members of the medical profession are cordially invited to attend.

Naval, Military and Air Force.

APPOINTMENTS.

THE following appointments, promotions *et cetera* are promulgated in the *Commonwealth of Australia Gazette*, Number 63, of September 18, 1952.

NAVAL FORCES OF THE COMMONWEALTH.

Permanent Naval Forces of the Commonwealth (Sea-Going Forces).

Appointment.—Brian Warren Curlewis is appointed Surgeon Lieutenant (for short service), dated 1st August, 1952.

Citizen Naval Forces of the Commonwealth.

Royal Australian Naval Volunteer Reserve.

Transfer to Retired List.—Surgeon Lieutenant Wilfred Lievesley Nickson is transferred to the Retired List, dated 29th January, 1952.

Resignation.—The resignation of Leonard Hugh Catchlove of his appointment as Surgeon Lieutenant is accepted, dated 12th June, 1952.

ROYAL AUSTRALIAN AIR FORCE.

Citizen Air Force: Air Force Reserve.

Medical Branch.

The following former officers are appointed to commissions with rank as indicated: (Flight Lieutenant (Temporary Squadron Leader)) T. W. Capell (253179), 5th August, 1952; (Flight Lieutenant) J. W. P. Henderson (277272), 7th July, 1952.

The following are appointed to commissions with the rank of Flight Lieutenant: Thomas John Hansen (277610), 17th April, 1952, James Anthony Gillett (297532), Walter Winerton (297533), 23rd June, 1952, John Norval Burgess (257884), 27th June, 1952.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED SEPTEMBER 20, 1952.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	..	1	..	..	..	..	..	..	1
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	..	..	10	..	..	..	1	..	11
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	1	..	..	..	..	..	..	1
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	..	..	8(7)	..	..	..	1	..	9
Diphtheria	11(8)	5(1)	7(3)	..	2(2)	..	..	..	25
Dysentery (Bacillary)	..	6(6)	1	1(1)	..	..	..	..	8
Encephalitis	1	..	..	2(2)	1(1)	..	..	..	4
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	..	..	..	..
Infective Hepatitis	..	4	..	..	19(7)	..	..	..	23
Lead Poisoning	..	..	1(1)	..	..	..	..	..	1
Leprosy	..	..	..	..	..	..	..	..	..
Leptospirosis	..	..	4	..	..	..	..	..	4
Malaria	..	..	..	..	..	..	2	..	2
Meningococcal Infection	4(3)	6(2)	1	1(1)	..	..	..	..	12
Ophthalmia	..	..	..	..	11	..	..	..	11
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	8(4)	2	3(1)	2(1)	2(1)	1	..	..	18
Puerperal Fever	..	..	..	..	..	..	..	..	..
Rubella	..	42(23)	..	..	10(6)	..	1	53	..
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	23(17)	25(20)	3(3)	..	5(2)	11(1)	2	69	..
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	2	..	..	..	..	..	2
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	32(27)	19(12)	7(2)	7(6)	13(8)	7(1)	1	..	86
Typhoid Fever	..	1	..	..	..	..	..	..	1
Typhus (Flea-, Mite- and Tick-borne)	..	..	1	..	..	..	..	..	1
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

The appointment of Flight Lieutenant (Temporary Squadron Leader) L. Kowadlo (257662) is terminated, 7th July, 1952.

Obituary.

ROY DADSON MULVEY.

DR. BROOKE MOORE has sent the following appreciation of the late Dr. Roy Dadson Mulvey.

Roy Dadson Mulvey started his professional career as a school teacher, with the degrees of Bachelor of Arts and Bachelor of Science. In the first World War he fought with distinction in the Eighth Trench Mortar Battalion, ending as a captain with a Military Cross. He decided to practise medicine after the war, and graduated M.B., Ch.M. in 1923. After two years as a resident medical officer at the Prince of Wales Hospital, Randwick, he commenced practice at Oberon. Here his first wife died, leaving him with five children. In 1930 he moved to Bathurst, where he had a large practice. He found time in a busy professional life to take part in many of the city's activities. He was a past master of Masonry, a past president of Rotary, a member of Legacy and several other bodies. He was a good speaker and a great supporter of school debating. During the second World War his eldest son died as a captain in the Australian Army Medical Corps in New Guinea. The fortitude with which he bore his deep personal sorrows, as well as his human approach to the problems of others, endeared him to his colleagues, his patients, his personal friends and the community in general. Early this year he took a well-earned trip to Europe for a rest. Everyone who knew him was immensely pleased to hear that he had made a romantic second marriage. His sudden death at The Hague on August 15 from a heart attack was as sadly felt. His many fine attributes will long be remembered by his innumerable friends.

HENRY DOUGLAS STEPHENS.

DR. E. S. MEYERS writes: Dr. Henry Douglas Stephens, with the late Dr. Colin MacKenzie and Mr. H. B. Devine, visited Brisbane to lecture at the Post-Graduate Week in 1928. The annual report of the Council for that year states: "For the actual course Dr. H. Douglas Stephens delivered three lectures and performed some surgical operations. The lecture room and operating theatre were packed, and he spoke and demonstrated for as much as two hours on end. He dealt with simple everyday problems of pædiatrics and his lectures were patterns of good post-graduate teaching." Among the operations were one or two for hare-lip and cleft palate. Some years ago I asked the late Sir James Berry how he had learnt to perform such operations so well, and he replied "by serving a long apprenticeship". I am sure that Dr. Stephens must have served a long apprenticeship, as these operations were beautifully performed.

All here in those days were charmed with the happy disposition of Dr. Stephens, and he, in turn, enjoyed every minute of his stay. The social events culminated in the annual dinner of the British Medical Association, where, in addition to the post-graduate visitors, the late Honourable James Stopford, Home Secretary, was also a guest of the Association. I am sure I am speaking for those remaining members, present at the dinner, in stating that all enjoyed the good fellowship of the occasion, none more than Dr. Stephens. We all regret the passing of a very great pædiatrician.

LEOPOLD LOFKOVITS.

WE regret to announce the death of Dr. Leopold Lofkovits, which occurred on October 10, 1952, at Brisbane.

WILLIAM EWART GYE.

WE regret to announce the death of Professor William Ewart Gye, which occurred on October 15, 1952, at Perth.

Medical Appointments.

Dr. H. C. Stone has been appointed Superintendent of the Repatriation Mental Hospital, Bundoora, and the Mental Hospital, Janefield, Victoria.

Dr. N. C. Davis has been granted a licence to sign permissions and certificates for cremation, and to grant permission to cremate any human body after death, under the provisions of *The Cremation Acts*, 1913 *to* 1935, of Queensland.

Diary for the Month.

OCT. 28.—New South Wales Branch, B.M.A.: Ethics Committee.
OCT. 28.—Western Australian Branch, B.M.A.: General Meeting.
OCT. 30.—New South Wales Branch, B.M.A.: Branch Meeting.
OCT. 30.—South Australian Branch, B.M.A.: Scientific Meeting.
NOV. 4.—New South Wales Branch, B.M.A.: Organization and Science Committee.
NOV. 5.—Western Australian Branch, B.M.A.: Council Meeting.
NOV. 6.—South Australian Branch, B.M.A.: Council Meeting.
NOV. 11.—New South Wales Branch, B.M.A.: Executive and Finance Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federal Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178 North Terrace, Adelaide): All Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

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